THE IRON TRADE REVIEW

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EXCITEMENT

IS ACCOMPANIED BY GLOOMY FOREBODINGS.

Runaway Market in Pig Iron and Little Prospect of Relief.—H. C. Frick Coke Co. Buys Large Tonnage of Coke.—Prices Still Advancing.

The danger of excessive prices, which the history of the trade shows are always followed by periods of depression, and sometimes by paralysis of business, is greater than it was a week ago. On some grades of pig iron, quotations have been advanced as much as $1.50 per ton within a few days. In spite of the increased production, the supply is not adequate, and there is a scarcity of all grades in all parts of the country, at least for delivery up to April of next year. For anything like prompt delivery, it is impossible to get accurate quotations, as every sale is a law unto itself, but as high as $25.00 is freely paid in both eastern and western cities for No. 2 foundry, while very high prices are also received for steel making iron. In the east, the principal feature was the sale of about 125,000 tons of basic. Pittsburg was the center of excitement, accompanied by a decidedly gloomy feeling, due to fear of the results which will follow the very unusual conditions. In the south, labor, weather and transportation conditions have reduced production, and although the weather has improved, there is still a shortage of cars and laborers.

Coke and Ore Prices. Added to the troubles of the furnace men, are the increased prices for coke and probable higher quotations on ore. A year ago, large contracts for furnace coke were being made at $2.50. Today, the price is from 50 to 75 cents higher. With this increase in coke and the expected advance in ores, the cost per ton of pig iron will be augmented by at least $1.50 per ton. The greatest danger, however, is that many furnaces will not be able to obtain coke at any price, since the principal producer, which, for many years, was a heavy seller and has more recently disposed of all its product to the Steel Corporation, has appeared as a buyer and has contracted for about 360,000 tons of coke for next year's delivery. There is grave apprehension that there will be serious difficulty in obtaining sufficient cars to deliver the coke during the winter.

Imports Considered. In considering the very unusual conditions now prevailing, it is difficult to see much prospect of relief. If it is true that some pig iron is being imported and that more will doubtless come in at an early date, but the demand for it in England and Germany is so strong that exports will not be made from those countries, except at high prices.

Pipe is Advanced. Although the finished material market is overshadowed in interest by the pig iron situation, activity in all the mills still continues. The principal producer of merchant pipe has been practically forced to advance quotations about $4.00 per ton by the independent interests. Railway supplies, especially spikes, are scarce. A contract for 15,000 tons of bridge material on the Canadian Pacific has been awarded to the Canadian Bridge Co. and other large contracts for structural material are pending. The demand for old material is strong.

Among the sales of rails reported early in the present week are the following: Chicago, Lake Shore & South Bend, 1,100 tons; St. Joseph Valley railway, 1,200 tons; Mexican National, 5,000 tons; Mexican International, 5,000 tons, and to various frog and switch companies, about 2,500 tons.

IMPORTANT DEALS

MADE FOR ORE LANDS TO SUPPLY INDEPENDENTS.

Republic-Tennessee Companies Acquire Large Holdings.—New York State Steel Co. Obtains Its First Supply.

Office of THE IRON TRADE REVIEW, Duluth October 15.

During the week it has come to light that the New York State Steel Co. obtained its first supply of ore by leasing the property owned by W. H. Yawkey, of New York, and M. L. Fay, of the Tesora Mining Co., on which, as already reported, a body of high-grade ore has been shown up. The property is directly south of the Holland mine and in section 9 township 58 range 16. The terms of the lease have not been made public, but it is understood that the royalty is to be $1 a ton, which is the highest price yet paid for ore on the Mesabi. A quantity of ore amounting to 4,000,000 tons has been claimed for the deposit, but so far as is known the exploratory work already done does not consist of more than three drill holes and some testpitting which in itself would not justify such a claim. However, 4,000,000 tons is not unreasonable, and if it is true, the royalty of $1 will not be exorbitant, as the ore is of Bessemer grade. Just what the minimums are is not known. The New York Company is to begin work at once proving up the drill holes already on the property, and proceeding with the exploration. This company has been in the market for ore-bearing land for some time, and is fortunate to obtain as good a supply as it has.

SOUTHERN LANDS SOLD.

New York, Oct. 17.—The Republic Iron & Steel Co. and the Tennessee Coal & Iron Co. have closed an important iron ore deal. The land jointly purchased is situated in Alabama and was part of a tract formerly owned by M. L. Potter, of New York. The deposit is estimated to contain approximately 72,000,000 tons of ore yielding 40 per cent iron. The price paid is officially announced to be $800,000, of which $100,000 will be paid in cash and the remainder in 5 per cent bonds.

THE WEEK IN IRON CENTERS.

PITTSBURG.

Runaway Market in Crude Materials. —Frick Co. Buys Coke.

Office of THE IRON TRADE REVIEW, 541 PARK BUILDING, Oct. 16

The market has all the appearance of a runaway in crude materials, while finished materials are held steady, and semi-finished materials, billets and sheet bars, are thus held in check, but are very firm.

As high as $25, Pittsburg, has been paid on carload lots of No. 2 foundry for very prompt delivery, while 500 tons of prompt basic has been sold at $21, valley. These prices illustrate better than words the veritable famine which exists in pig iron, and from which there appears to be no relief in sight.

There has been a rush on the part of furnace interests to cover for coke for next year, and in the past week much more than half the furnace coke output for the first half of next year has been contracted for, with a large tonnage for second half also. These purchases caused the market to advance rapidly and after the movement was well started the H. C. Frick Coke Co. appeared as a heavy buyer, and has taken, including some deals arranged but not finally signed for, about 20,000 tons a month throughout 1907, and 20,000 tons extra for the first six months, or a total of about 360,000 tons for the year. While the company has frequently been a buyer of small lots for early delivery, this is the first time in four years that it has bought coke for delivery over long periods. On the six months contracts, it paid $2.90 to $3.00 and on the year contracts $3.00 to $3.10. It goes without saying that only the most unusual conditions would lead the largest producer to make these heavy purchases, and at such very high prices.

A large tonnage of sheet bars has been sold for delivery over the first half of next year, on the basis of about $30, f. o. b. Pittsburg.

Merchant pipe has been advanced two points, or about $4 a net ton. While it is the distinct policy of the leading interest not to advance any finished steel products at this time, peculiar conditions had been brought about in the pipe trade which practically forced the leading interest to make the advance.

Although the weather has been very good the car shortage has become still more pronounced, and the outlook for the winter is very bad indeed. Production in all lines will be very heavy this month, doubtless breaking many records, and the material will probably be shipped fairly well, but concerning conditions as to production and shipments after this month there are the darkest forebodings.

Producers who, by selling freely and refraining from advancing prices did all in their power to prevent a runaway market, have found that conditions were too strong for them and are resigned to the inevitable. All indications are for a famine in most materials this winter with irregular prices, and a subsequent chill when a more normal order of things is restored.

Pig Iron.—Regular sales of Bessemer pig to consumers have been very light, and not sufficient to show what the market is, if indeed there is any market, with practically no iron offering except occasional lots by middlemen. There was a purchase last week by a producing interest, but it was an involved transaction and the price threw no light on the market. A sale of basic was made last week for December, January and February shipment at $19.25, valley, but since then 1,000 tons have sold at $20, valley, for October and November delivery, and 500 tons for prompt shipment at $21. Rarely has the market shown such spreads between sales. With scarcely any iron in sight for first half, we quote nominally for such delivery $21, valley, on Bessemer and $20.75, valley, on basic.

Carload lots of absolutely spot shipment No. 2 foundry have sold at $25, Pittsburg, which is not to be taken as an indication of market prices, but of the extreme urgency occasionally developing among consumers. A number of sales have been made for early shipment at about $21, valley, and in the present excited state of the market and with furnaces compelled to pay still more for coke for next year than the high prices they were resigned to pay, it is doubtful if No. 2 foundry for first quarter could be bought at under $20, valley. We revise prices as follows for first half delivery, but would note that they are largely nominal, there being scarcely any iron offered.

Bessemer Valley	21.00 to 21.25
Bessemer, Pittsburg	21.85 to 22.10
No. 1 Foundry, Pittsburg	21.35 to 21.60
No. 2 Foundry, Pittsburg	20.85 to 21.10
Gray Forge, Pittsburg	19.85 to 20.10
Basic, Valley	20.75 to 21.00
Basic, Pittsburg	21.60 to 21.50

Ferro-Manganese. — The market continues on the lower level noted last week and has been extremely quiet. We quote good grades of imported 80 per cent ferro at about $77, delivered Pittsburg, for late this year or the first quarter of next year, and at $79 to $81 for prompt. The fact behind the report circulating in this market last week, that a large cargo of Russian ferro was on the way, is that a cargo of Russian ore is on the way to the Maryland Steel Co., to be used in the blast furnace lately leased from the Tidewater Steel Co. We continue to quote 50 per cent ferro-silicon at $97 for the balance of this year, and 12 per cent at $32.50 to $33.

Skelp.—Specifications are very good on old contracts. The market is a purely nominal one, and we repeat former quotations, although with the two-point advance in merchant pipe independent mills will now be willing to sell farther ahead and will likely be in the market for additional skelp, which is likely to send the market up.

Bessemer, grooved, 1.62½c to 1.67½c; sheared, 1.67½c to 1.72½c; basic, grooved, 1.65c to 1.70c; sheared, 1.70c to 1.75c; iron skelp, grooved, 1.80c to 1.85c; sheared, 1.90c to 2c.

Muck Bar. — The market continues to advance with advancing pig iron prices, and we now quote prime all-pig muck at $32 to $33, delivered Pittsburg, with scrap bars at $29 to $30. The market is quiet, so little material being available.

Merchant Bars.—Orders and specifications for steel bars continue good, but with heavier production mills are not falling farther behind. The talk of an advance in steel bars will not altogether down, but there is really no indication whatever that one will be made. Statements have been generally made and accepted in the past few weeks that certain mills had advanced their price on steel bars to 1.60c, being sold very far ahead, but we can state that, in the case of one mill which has been prominently mentioned in this connection, sales for delivery after Jan. 1 are being made to regular customers at 1.50c, 1.55c being charged to some others, while only in extreme cases is 1.60c quoted. For any delivery before Jan. 1, this interest's minimum is 1.60c. Consumers are pressing for deliveries on specifications already made, and evidently really need the material. Iron bar business is very good, mills being unable to make earlier deliveries than four weeks, and that only on the commonest sizes. On good sized lots and desirable specifications, common

iron bars are to be had at 1.60c, delivered Pittsburg, but on single carloads, or less desirable specifications, 1.65c is quoted, and even as high as 1.70c. We continue to quote, for general delivery:

Common iron bars, 1.60c, Pittsburg, in carload lots, 1.65c in less than carloads; Bessemer steel bars, 1.50c; plow and cultivator, 1.50c net; channels, angles, zees and tees, under three inches, 1.60c, all f. o. b. Pittsburg. The following differentials are maintained on steel: Less than 2,000 pounds, 0.10c advance; less than 1,000 pounds, of a size, 0.30c advance.

Wire and Wire Nails.—The market is quite active despite the fact that the largest buyers placed their contracts before the recent withdrawal of concessions. Mills are from three to four weeks behind in deliveries of plain wire and wire nails, barb wire and wire fence being in less demand and shipments better. Some of the independent mills which get their steel from the outside are demanding slight premiums. The regular official prices are very firmly maintained, as follows:

Wire nails, jobbers' carload lots, $1.85; retailers' carload lots, $1.90, and less than carload lots, $2; painted barb wire, $2 for jobbers in carloads; retailers in carloads, $2.05, and less than carloads, $2.15, with 30c for galvanizing; plain wire, $1.70 to jobbers and $1.75 by carload.

Steel. — Deliveries of billets and sheet bars on contract are considerably better, but the mills are still too far behind to think of making any regular sales for early delivery, and it is largely a nominal market. Doubtless offers of fancy prices would bring out material, but consumers cannot afford to pay fancy prices, as the advances have been confined almost wholly to the cruder materials. The Republic Iron & Steel Co. has made some fairly heavy sales of sheet bars, chiefly to tin mills, for delivery over the first half of 1907. The company is now making about 10,000 tons of sheet bars a month, and shipping on contracts made some time ago to the end of the year. Its deliveries have been very satisfactory. Sales for next year are understood to have been made on the basis of about $30, Pittsburg, which is the recognized market. We quote billets nominally at $28 to $29 for Bessemer and $29 to $30 for openhearth.

Merchant Steel. — The market is without special incident, except that demand for shafting is extremely heavy, producers being much pressed to make deliveries, and turning out a very large tonnage. We continue to quote:

Cold rolled and ground shafting, 50 per cent off in carload lots, and 45 off in less than carloads, delivered in base territory; tire steel, 1.70c to 1.80c; openhearth spring steel, 2.25c to 2.50c; sleigh shoe flat, 1.50c to 1.55c; smooth finished machinery steel, 1.90c to 2c; toe calk, 2.05c to 2.10c. The price of planished and machine straightened tire is 1.70c base half extras as below. Iron finished tire up to 1½ inch by ½ inch, 1.65c base half extra tire list. Iron finished tire 1½ inch by ½ inch and over to be sold on regular bar basis of 1.50c base; half extra steel card.

Merchant Pipe. — Effective Saturday, Oct. 13, official prices on merchant pipe were advanced two points, or about $4 per net ton, making the discount on black steel, jobbers' carloads, ¾ to 6 inch inclusive, 78 off list. The minimum of the market, in large lots to large jobbers, advances from 81 and 5 to 79 and 5. The advance is eagerly followed by the independents, who have been anxious for this advance for a long time. The advance was somewhat unexpected at this time, as a couple of months ago an advance was looked for, but none came, and of late it has been the firm policy of the United States Steel Corporation not to make any advances in finished steel products, the general market being dangerously buoyant. Among the independents it is stated that the advance was, in a measure, forced because the independents had avoided booking business as much as possible, thus throwing it to the leading interest, which became booked up very far ahead. The maneuvering between the leading interest and the independents in this market has always been interesting, and, if this analysis of the situation is correct, the latest development is the most interesting of all. The official list as advanced two points, is as follows, on consumers' carloads, jobbers' carloads being one point lower and the minimum of the market one point and 5 per cent still lower:

	Steel		Iron	
Consumer's Carloads	Black	Galv.	Black	Galv.
⅛ and ¼ inch	60	53	65½	49½
¾ inch	71	57	67½	53½
½ inch	73	61	69½	57½
⅝ to 6 inches	77	67	74	64
7 to 12 inches	72	57	69	53½
EXTRA STRONG PLAIN ENDS.				
⅛ to ⅜ inch	62	50	58½	46½
½ to 4 inches	60	57	65½	53½
4½ to 8 inches	65	58	61½	49½
Double extra strong plain ends, ⅛ to 8 inches	58	47	54½	43½

Sheets.—The market continues very strong, with premiums ruling on any early delivery, say within from one to three weeks, even on carload and larger lots. Regular mill prices are unchanged as follows:

Black steel sheets, box annealed, cold rolled, one pass: Nos. 11-12, 2.10c; Nos. 13-14, 2.15c; Nos. 15-16, 2.20c; Nos. 17-21, 2.25c; Nos. 22-24, 2.30c; Nos. 25-26, 2.35c; No. 27, 2.40c; No. 28, 2.50c; No. 29, 2.65c; No. 30, 2.75c. Galvanized, Nos. 10-11, 2.45c; Nos. 12-14, 2.55c; Nos. 15-16, 2.65c; Nos. 17-21, 2.80c; Nos. 22-24, 2.95c; Nos. 25-26, 3.15c; No. 27, 3.35c; No. 28, 3.55c; No. 29, 3.80c; No. 30, 4.05c. Corrugated roofing, $1.75 per square for No. 28 painted, 2½-inch corrugation. $3.10 per square for No. 26 galvanized, 2½ inch corrugation. Quotations f. o. b. Pittsburg on large lots.

Plates. — Plate business continues quite heavy, but is hardly beyond the current output of the mills, with the larger production they are now making and there is some chance later in the year of their catching up somewhat. We continue to quote:

Tank plate ¼-inch thick, 6¼ to 100 inches, 1.60c f. o. b. mill, Pittsburg. Light plate schedule, No. 10, 1.70c; Nos. 11-12, 1.75c; Nos. 13-14, 1.80c; Nos. 15-16, 1.90c. Extras on the regular plate schedule are as follows per 100 pounds, boiler and flange steel plates, 0.10c; A. B. M. A. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.30c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches excepting straight taper plates, varying not more than four inches, in width at ends, narrowest end not being less than 30 inches, 0.10c; complete circles, 0.20c. Plates in width over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1.00c. Gauges under ¼-inch to and including 3-16-inch plates on thin edges, 0.10c; under 3-16-inch to and including No. 8, 0.15c; under No. 8 and including No. 9, 0.25c. Five cents extra for less than carloads. Terms, net cash in 30 days.

Tin Plate.—Very peculiar conditions prevail in the tin plate industry. The mills appear to be well sold up through the first quarter, with considerable business booked for second quarter, at premiums of 10 to 15 cents a box, while production is by far the heaviest since the spring of last year, yet the consuming demand does not appear to be overly good and the canning crops have, on an average, been a disappointment and considerably below last year. There are conflicting statements as to deliveries, it being claimed in most quarters that they are equal to all requirements. Where the enormous business comes from is a mystery, and one theory offered is that an unusual quantity of material rolled on tin mills is going out as black plate, enameling stock, etc. The sales for second quarter at premiums are of no particular moment, as such contracts are guaranteed against decline, and it is to

be presumed therefore that if the official market has not advanced by that time the guarantee will kill the premium. We continue to quote regular mill prices as follows:

Coke tin plates, 100-pound basis, 14 x 20, $3.75, f. o. b. mill Pittsburg district; terms 30 days, less two per cent for cash in 10 days.

Structural Material. — The market has been quieter than for some time, and with the very heavy production mills are afforded just a little chance to catch up. We continue to quote:

Beams and channels, 15-inch and under, 1.70c; over 15 in., 1.80c; zees, 1.70c; tees, 1.75c; angles from three to six inches, inclusive, 1.70c; over six inches, 1.80c; universal and sheared plates, 6¼ inches and wider, 1.60c base.

Rails and Track Material.—It develops that the 37,100 tons of rails sold by the local mill to the Baltimore & Ohio, as given in this report last week, constituted the bulk of the order, the total allotment being 66,000 tons, distributed 11,500 tons to the Maryland Steel Co., 17,100 tons to the Cambria Steel Co., and 37,100 tons to the Carnegie Steel Co. There is a little less pressure for rail deliveries as the season advances, but all the mills will have to carry over a considerable tonnage into next year, in some cases much more than the railroads would like. Demand for light rails continues good, although the mills are sold so far ahead. The spike market has advanced further, and $2.50 has become the market for next year, while earlier deliveries bring higher prices, close to $3.00 for single carloads for prompt shipment. We quote prices unchanged, except as to spikes:

Rails 50 pounds and heavier, 500-ton lots and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; light rails, 16 pounds, $32; 20 pounds, $33; 25 pounds to 45 pounds, $31 to $32; angle bars for standard sections, 1.50c; spikes, $2.50 to $2.75.

Hoops and Bands. — Specifications continue good and the market is firm at former prices, as follows:

Hoops, 1.90c in carload lots, and 2c on less than carload lots; bands, 1.50c base, half extras as per standard steel card. Prices f. o. b. Pittsburg.

Old Material.—Demand for foundry and rolling mill scrap has been very heavy. The outcome of scrap is large, in anticipation of bad weather, but all offerings are freely taken. The market is fairly steady at the advanced prices quoted last week:

Heavy melting scrap, $16.50 to $17.00; rerolling rails, $19.00 to $19.50; bundled sheet scrap, $14.75 to $15.25; iron car axles, $28.50 to $29.00; old car wheels, $20.50 to $21.00; old iron rails, $23.50 to $24.00; low phosphorus scrap, $22.00 to $22.50; No. 1 wrought scrap, $19.50 to $19.75; machine shop turnings, $13.00 to $13.25; axle turnings, $13.50 to $13.75; cast borings, $10.25 to $10.50; No. 1 cast scrap, $17.00 to $17.50.

Coke. — The dickering on furnace coke for next year, noted in last report, suddenly gave way to a rush of buying, which has covered the bulk of the regular consumers, while, after the movement was well started and prices had begun to advance, the H. C. Frick Coke Co. came in as a very active buyer and closed a number of contracts, in some cases taking the entire output of certain operations and in other cases only a part. Only a few consumers got in at the minimum price of $2.75, prices paid ranging on up to $3.00. The Frick company paid $2.90 to $3.00 on contracts for delivery only during the first half, and covering a little over 20,000 tons, while it paid from $3.00 to $3.10 on contracts covering the entire year and involving about 20,000 tons monthly. It has thus contracted, in less than a week, for a total of about 40,000 tons a month during the first half and about 20,000 tons a month during the second half, a total of about 360,000 tons for the entire year, at an average price of about $3.00 a ton. The move on the part of the Frick company was rather unexpected, as with its increased output and its withdrawal a few years ago as a seller of foundry coke it was supposed to be capable of meeting the demands of the steel corporation's blast furnaces, except for the purchases of odd lots of prompt coke such as it has been making in the past couple of months. Not since the latter part of 1902 has it come into the market and made six-month and twelve-month contracts as it has just done. The bulk of the furnace demand for the first half of next year has now been supplied, some on half year and some on year contracts, but the Connellsville output would not have been sufficient and a number of interests have gone over to West Virginia coke, particularly the eastern merchant furnaces, which do not make Bessemer pig iron to any extent. The large steel interests which need outside coke are fairly well covered for next year. The gravest apprehensions are felt as to coke movements this winter. Already the car shortage is a serious matter, although the weather is all that could be desired. We now quote prompt furnace coke, strictly Connellsville, at $2.85 to $3.00, while 72-hour foundry is $3.75. There has been some buying of foundry coke for next year at this price.

CHICAGO.

Active Buying of Billets.—Heavy Specifications Received.

Office of THE IRON TRADE REVIEW, 1362 Monadnock Block, Oct. 16.

Specifications are the order of the day, and these continue to tax the capacity of mills. New tonnage for finished material is of small moment, and what is accepted is taken without any guarantee of delivery. The most important development of the week is the active buying of crude and semi-finished material for next year's delivery. Several large sales of forging billets for that shipment have been consummated with local consumers, and others are pending.

The pig iron market has passed entirely from the control of furnaces and prices are now made by melters. Another advance of 50 cents a ton is recorded this week, but the end is not yet in sight. Coke is also higher, Connellsville producers having raised their price to $4 ovens. Discounts on merchant steel pipe have been reduced two points and casing one point. Scrap is stronger and higher prices are looked for. Several large purchases of bar iron have been made this week by western railroads and the price of that product is again firm at 1.55c Pittsburg. Steel bar manufacturers have no difficulty in getting 1.60c Pittsburg when prompt shipment is desired.

Pig Iron.—An active week has just closed in pig iron. Everybody seems in the market for more or less tonnage. Desirable grades for early shipment are scarce, and for such lots as are offered the competition among foundrymen to obtain them is keen. It seems impossible to hold back the upward trend of prices. It is a seller's market entirely, the most important question the furnace has to decide being to whom first to offer the iron. Prices change in a day, and doubtless before the week is ended the quotations here given will be obsolete. For spot delivery today southern No. 2 foundry commands from $18.50 to $19.00, Birmingham, while northern No. 2 foundry is held at $22 Chicago, an advance of 50 cents to $1.00 a ton over last week's prices. Each transaction is a law unto itself, even on commitments for 1907 deliveries, and according to the relations that have heretofore existed is the buyer given consideration when he comes to discuss a purchase. There is a spread of 50 cents to $1 a ton in prices for the various quarterly needs up to next July. The minimum quotation on southern No. 2 for shipment

between January and April is $17.50, Birmingham, and for northern No. 2, $21, for the second quarter it is $16.50 and $20.50 respectively. The large buying this week has been in malleable Bessemer and Lake Superior charcoal, of which some round lots have been taken by leading consumers. The demand for foundry grades has been confined largely to lots below 500 tons. The market is extremely strong and no one can foretell to just what limits it will go. We have revised our prices and quote as follows for first half delivery:

Lake Superior charcoal	$21.00 to 21.50
Northern Foundry No. 1	21.50 to 22.00
Northern Foundry No. 2	21.00 to 21.50
Northern Foundry No. 3	20.50 to 21.00
Northern Scotch Foundry	21.50 to 22.00
Ohio Strong Softeners No. 1	22.25 to 22.75
Ohio Strong Softeners No. 2	21.75 to 22.25
Southern Foundry No. 1	20.90 to 21.40
Southern Foundry No. 2	20.40 to 20.90
Southern Foundry No. 3	19.90 to 20.40
Southern Foundry No. 4	19.40 to 9.90
Southern No. 1 Soft	20.90 to 21.40
Southern No. 2 Soft	20.40 to 20.90
Southern Gray Forge	18.15 to 18.85
Southern Mottled	17.65 to 17.90
Southern Silveries (4 per cent to 6 per cent Silicon	22.90 to 23.40
Jackson Co. Silveries, 8 to 10 per cent Silicon	24.80 to 25.30
Alabama and Georgia Car Wheel	26.65 to 27.15
Malleable Bessemer	21.00 to 21.50
Standard Bessemer	22.30 to 22.80
Basic Iron	20.35 to 20.85

Billets.—The transactions of most importance closed this week involved forging billets for delivery in the first half of 1907. Several sales for these shipments were made, the tonnage aggregating 10,000, and the price varying from $34 to $35, according to the amount purchased. Carload lots of forging billets for this year's delivery are still picked up here and there, and are disposed of at prices ranging from $36 to $38 Chicago.

Iron and Steel Bars.—New tonnage for bar iron this week was augmented by several large purchases by western railroads. Altogether, about 5,000 tons were taken by these interests. Specifications for iron bars are active and prices are firmer. No change is noted in the steel bar situation. Specifications continue heavy and mills are making no headway on their deferred contracts. For quick shipment a premium of $2 a ton is easily obtained. We quote carload lots, mill shipments, as follows:

Bar iron, 1.71½c; soft steel bars and bands, 1.66½c, half extras; soft steel angles, less than 3 x 3, 1.76½c; hoops, 2.06½c base, full extras; old rail stock, 1.65½c. We quote bar iron from stock, 2.20c, full extras; soft steel rounds and squares, 3 inches and larger, $2 per 100 pounds base; flats, 2 inches to 4 inches by 1⅛-inch and larger, $2 per 100 pounds base; 4½ inches x 5 inches and 6 inches x 5-16 inch and thicker, $2 per 100 pounds base; all ovals, half rounds, $2 per 100 pounds base; steel bands, $1.85 to $1.95 half extras; soft steel hoops, $2.30 to $2.40 full extras. Other sizes not mentioned above, $1.85 per 100 pounds base plus half extras.

Sheets.—The market maintains its former strength. There is a wide demand for all gauges, both black and galvanized. Deliveries are slow. Prices are without change as follows:

Black sheets, Nos. 8, 9 and 10, 1.85c Pittsburg; No. 28 gauge, 2.50c Pittsburg. Galvanized sheets, No. 28 gauge, 3.55c to 3.60c Pittsburg. Freight to Chicago is 16½c per 100 pounds.

Jobbers' prices on less than carload lots from store are as follows: Black sheets, No. 10, 2.10c to 2.20c; No. 12, 2.15c to 2.25c; No. 14, 2.20c to 2.25c; No. 16, 2.30c to 2.35c; Nos. 18-20, 2.60c to 2.70c; Nos. 22-24, 2.65c to 2.70c; No. 26, 2.70c to 2.75c; No. 27, 2.75c to 2.80c; No. 28, 2.85c to 2.90c; No. 30, 3.35c to 3.45c. Galvanized sheets, Nos. 10 to 20, 3.15c to 3.25c; Nos. 22 and 24, 3.30c to 3.35c; No. 26, 3.50c to 3.55c; No. 27, 3.70c to 3.75c; No. 28, 3.90c to 3.95c; No. 30, 5.10c to 5.15c.

Plates.—New tonnage is limited by the ability of mills to make deliveries. None of the Chicago mills can do better than eight weeks on sheared plates, and equally as much time is required on universal sizes by eastern manufacturers. Prices are very firm. We quote as follows:

Tank steel, ¼-inch and heavier, up to 100 inches wide, 1.60c Pittsburg base. For extras see Pittsburg report. Freight rate to Chicago is 16½c per 100 pounds.

Jobbers' prices for shipment from local stocks are as follows: Tank steel ¼ inch and heavier, up to 72 inches wide, 2c to 2.10c; 72 inches up to 96 inches wide, 2.10c to 2.20c; 3-16 inch up to and including 60 inches wide, 2.10c to 2.20c; 3-16 inch, 72 inches wide, 2.35c to 2.45c; No. 8, up to 60 inches wide, 2.15c to 2.25c; flange steel, 25c extra; heads, 25c extra.

Structural Steel.—Early deliveries on structural shapes can be obtained from nearly all mills. Business is slack, and manufacturers are actively seeking orders. The only important contract was let by the Chicago & North Western railway for 450 tons of fabricated shapes for its new ore dock at Ashland, Wis. Another building contract for 200 tons for erection in San Francisco has been taken by the American Bridge Co. There are several large railroad inquiries for fabricated bridge material pending, about 10,000 tons of which are expected to be closed in the next few days. We quote mill prices as follows.

Beams and channels, 3 to 15 inches inclusive, 1.70c Pittsburg. For extras see Pittsburg report. Freight rate from that city to Chicago is 16½c per 100 pounds. Quotations from store are as follows:

All angles, three inches and larger, including six inches, $2.05 to $2.10 per 100 pounds; angles over six inches, $2.15 per 100 pounds base; beams, three inches to 15 inches inclusive, $2.05 to $2.10 per 100 pounds base; channels, three inches and larger, $2.05 per 100 pounds base.

Merchant Steel.—Specifications are without diminution. Deliveries are slow and consumers are pressing mills hard for shipments. Prices are without change. We quote as follows:

Planished or smooth finished tire steel, 1.86½c; iron finish, up to 1½ x ½ inch, 1.81½c; iron finish, 1½ x 1½ inch and larger, 1.66½c, base; channels for solid rubber tires, ¾ to 1 inch, 2.16½c, and 1⅛ inch and larger, 2.06½c; smooth finished machinery steel, 1.91½c; flat sleigh shoe, 1.71½c; concave and convex sleigh shoe, 1.96½c; cutter shoe, 2.35c; toe calk steel, 2.21½c; railway spring, 1.86½c; crucible tool steel, 6½c to 8c, and still higher prices are asked on special grades. Shafting, 50 per cent off in car lots and 45 per cent in less than car lots, in base territory.

Rails and Track Supplies.—No contracts of importance for standard sections have been closed in the west in the week under review. Since the advance in light rails, however, demand for that product has materially increased, and at least one mill is contemplating withdrawing from the market. New tonnage in track supplies continues heavy. Specifications are very strong and deliveries slow. The scarcity of cars has seriously handicapped western mills in the past week. We quote as follows:

Bessemer rails, $28 and open-hearth, $29; light rails, Bessemer steel, 30 to 45-pound sections, $29 to $30; 25-pound, $30 to $31; 20-pound, $31 to $32; 16-pound, $32 to $33; 12-pound, $33 to $34, and lighter sections, down to 8-pound, $39.50 to $41.50, all f. o. b. mill.

On contracts for angle bars, spikes and bolts when accompanied by rail orders, the Illinois Steel Co. is asking 1.50c to 1.75c for angle bars, 2.10c to 2.20c for spikes, and 2.45c to 2.55c for bolts. On miscellaneous business from the general trade, however, other manufacturers are asking 2.50c Chicago, for spikes, 2.85c for bolts with

square nuts, and 3c for bolts with hexagon nuts. Angle bars are held at 2.25c to 2.75c, according to the tonnage and delivery required.

Cast Iron Pipe.—No transactions of unusual importance have been closed nor are there any under negotiation. Routine orders, however, are brisk, and while individually small, their aggregate tonnage is of fair proportions. Prices are firm as follows: Four-inch water pipe, $34; six, eight and ten-inch, $33; 12-inch and larger, $32; gas pipe, $1 a ton higher.

Merchant Pipe.—An advance of two points in merchant steel pipe went into effect last Friday. Casing was also moved up one point. No new list was issued on iron pipe, this product still being about three points above steel. We have revised our prices, and quote Chicago discounts in car lots, as follows: ¾ to six-inch black steel pipe, 77.35; galvanized, 67.35. From store, local prices are 74½ to 75 per cent discount on the base sizes.

Boiler Tubes.—The advance in steel pipes has strengthened the tube market. Demand is good and prices are very firm. We quote as follows: 2¾ to five inches, steel, 68.35; iron, 55.35; seamless, 2¾ to 4½, 50.85. Less than carload lots from store, base sizes, are 60 off for steel; 47½ for iron, and 42½ for seamless tubes.

Wire Products.—The pressure for deliveries of wire materials is extremely strong. Not in years has there been so large a tonnage on mill books as at the present time, and not in several months have jobbers' stocks been so generally denuded as they are now. Fencing, smooth and barbed wire are the most active; nails are comparatively easy. Prices are firm as follows.

Wire nails, $2; painted barbed wire, $2.15; galvanized barbed wire, $2.45; smooth annealed wire, $1.85; smooth galvanized wire, $2.15; polished staples, $2.15; galvanized staples, $2.40. Carload lots to retailers, five cents higher; less than carload lots, 15 cents higher.

Coke.—There is no change in the coke market. Standard Connellsville brands are scarce, and early shipments are hard to obtain. Prices are steadily advancing in sympathy with pig iron. We quote 72-hour Connellsville foundry coke, $3.75 ovens, or $6.40 Chicago. West Virginia brands are firm at $3.50 to $3.75, or $5.75 to $6 Chicago. Local by-product coke, $6.40 Chicago.

Old Material.—An increased demand for scrap from consumptive sources has been felt in the current week. Steel and gray iron foundries are the principal buyers, and these interests have bought up practically all the desirable offerings of these products in the local market. Prices have stiffened under this buying movement, both cast scrap and heavy melting steel selling a few points higher. Railroad lists are sought with avidity for these materials, and it is not difficult to get a premium for desirable lots. We have revised some of our prices, and quote as follows, gross tons being given in the first paragraph:

Old Steel Rails (4 feet and over)	$17.50 to 18.00
Old Steel Rails (less than 4 feet)	17.00 to 17.50
Old Car Wheels	19.00 to 19.50
Old Iron Rails	25.50 to 26.00
Relaying Rails, subject to inspection	28.00 to 30.00
Frogs, Switches and Guards	17.00 to 17.50
Heavy Melting Steel	16.50 to 17.00
Mixed Country Steel	14.50 to 15.00

We quote net tons, as follows:

No. 1 R. R. Wrought	$17.50 to 18.00
No. 2 R. R. Wrought	16.50 to 17.00
Shafting	18.50 to 19.00
Dealers' Forge No. 1	13.00 to 13.50
Wrought Pipe and Flues	12.25 to 12.75
No. 1 Cast, 150 pounds and less	15.50 to 16.00
No. 1 Mill	9.00 to 9.50
Mixed Busheling (No. 1 & No. 2)	12.00 to 12.50
Country Sheet	8.00 to 8.50
No. 1 Boilers Cut	11.50 to 12.00
Boiler Punchings	15.00 to 15.50
Iron Car Axles	24.50 to 24.75
Steel Car Axles	20.50 to 20.75
Iron Axle Turnings	10.00 to 10.50
Cast Borings	8.50 to 9.00
Mixed Borings, etc.	8.50 to 9.00
Machine Shop Turnings	10.00 to 10.50
Railroad Malleable	15.50 to 16.00
Agricultural Malleable	15.00 to 15.50
Stove Plate and Light Cast Scrap	12.50 to 13.00
Old Iron Splice Bars	20.00 to 20.50

CLEVELAND.

Excitement of Recent Buying Movement Disappearing.—Spike Famine.

Office of THE IRON TRADE REVIEW, Browning Building, Oct. 17.

Iron Ore.—The stormy weather of the past week has interfered considerably with lake navigation and shipments have not held up with the pace recently set. No further action looking toward sales for 1907 has been taken and in all probability nothing will be done for at least five or six weeks. The opinion is gaining ground among ore producers that the advance over this season's rates should not be more than 25 cents on non-Bessemer and 50 cents on Bessemer ores.

Pig Iron.—The week has witnessed the passing of the second distinct buying movement recently inaugurated and the market has again become comparatively quiet with prices about stationary. There is still considerable inquiry from large foundry interests, some of which, it develops, are covered for only a very short period ahead. Spot iron is selling at almost any price the producer sees fit to ask, and attempts at tabulated quotations are futile. Basic has become especially strong and $22 valley could be easily procured if there were any iron on the market. Sales of malleable for early delivery are reported at $20 valley. For forward delivery one interest is still selling foundry at $19 valley for the second half, others are higher. Furnaces, as a rule, have their entire output engaged for the first quarter and in numerous instances are contracted until the middle of 1907. Considerable complaint is made by foundries over delayed shipments and furnaces are obliged to parcel out their make with great care in order to keep a large number of plants in operation. We quote as follows, Cleveland delivery, for the first half:

Bessemer	$19.50 to 20.00
No. 1 Foundry	20.00 to 20.50
No. 2 Foundry	19.50 to 20.00
No. 3 Foundry	19.00 to 19.50
No. 2 Southern	19.85 to 20.10
Gray Forge	18.00 to 18.50
Gray Forge, Southern	16.00 to 16.50
Lake Superior charcoal	20.00 to 21.00

Finished Materials.—The situation is uniformly strong, structurals being probably the least active feature of the entire market. Steel bars are increasingly scarce and some good orders at the recently advanced price of one large producer are reported. Bar iron specifications are exceedingly heavy, and mills are behind on deliveries. Forging billets are difficult to procure, the price being $35 Pittsburg. Both sheets and plates are in good demand, the latter being strengthened by the heavy requirements for the building of the eight boats to comprise the new Lackawanna fleet. It is understood that the steel for these will be furnished by the Lackawanna Steel Co. Railway supplies are scarce and a veritable famine in spikes is noted, one instance coming to light of a large consumer paying three cents for quick delivery, with 2.30c the quotation for shipment next spring.

Old Materials.—The tendency continues upward with an extremely active market. Mills are generally anxious to buy for forward delivery at present prices and dealers are holding firm at the following quotations, f. o. b. Cleveland, gross tons in first paragraph:

Old iron rails	$25.00 to 26.00
Old steel rails (over 6 feet)	18.00 to 19.00
Old steel rails (under 6 feet)	17.50 to 18.00
Old car wheels	18.00 to 18.50
Steel boiler plate	15.00 to 15.50
Steel axles	21.00 to 22.00
Malleable iron (railroad)	17.00 to 17.50
Malleable iron (agricultural)	15.00 to 15.50
Heavy steel	16.50 to 17.00
Country mixed steel	14.50 to 15.00

We quote net tons as follows:

No. 1 R. R. wrought	$18.00 to 18.50
No. 1 busheling	14.50 to 15.00
No. 1 machine cast	15.50 to 16.00
Iron axles	23.50 to 24.50
Axle turnings	11.50 to 12.00
Wrought turnings (free from cast)	10.50 to 11.00
Grate bars	12.50 to 13.00
Pipes and flues	14.00 to 14.50
Tank iron	12.00 to 12.50
Hoop and band iron	9.00 to 9.50
Sheet iron	8.00 to 8.50
Wrought drillings	10.50 to 11.00
Stove plate	12.50 to 13.00
Cast borings	8.50 to 9.00

Coke.—Conditions are as strong as ever, foundry coke being offered at $3.75 to $3.85 for the first half and $3.65 for the year. Furnace coke is much stronger, selling at $3 to $3.25. The scarcity of cars is an embarrassing feature, and a great deal of foundry coke is being shipped in hoppers. Still more difficulty is anticipated with the advent of cold weather.

CINCINNATI.

High Prices for Spot Iron and General Tendency to Advance.

October 16.

Pig Iron.—There has been an active inquiry for iron the past week and the market ruled firm with an advancing tendency. Spot iron, especially No. 2 soft, is urgently sought and several large consumers are canvassing the market for prompt shipment foundry grades. Southern iron for quick delivery has sold as high as $18.50 Birmingham, while prices for deliveries over the remaining months of this year range from $17.00 to $18.00 Birmingham. For next year southern iron is quoted mainly at $16.00 Birmingham, although some premium is being asked occasionally for delivery in the first quarter, so that prices range from $16.00 to $16.50 for next year's delivery.

Northern iron is firmly established at $21.00 for this year's delivery and $19.00 for next year with some furnaces asking $19.50 to $20.00 for first quarter shipment.

Gray forge has been in good demand and the supply is becoming limited. For this year's delivery some forge has sold at $14.25 to $14.50 Birmingham. Sales are also reported for delivery next year of 1,000 tons at $14.25 for first quarter and 1,500 tons for the same delivery at $15.00 Birmingham. Jackson county eight per cent silicon is held at $25.00 at furnaces, although some sales have been made during the week at $24.00.

The sales of the week have been larger in volume than for some time, and the scarcity of iron for the balance of the year has restricted business. There is considerable inquiry in the hands of pig iron agencies on which they can not even quote. Some of the largest melters were in the market this week taking all of the prompt iron they could get and paying strong prices for some grades.

It is also true that there will be some southern iron on the market by or before the first of the year, from furnaces who have held back and have not taken on any business, which may have some effect in checking extreme prices for prompt iron later on. We quote for this year's delivery as follows:

Southern Foundry No. 1	$20.50 to 21.00
Southern Foundry No. 2	20.00 to 20.50
Southern Foundry No. 3	19.50 to 20.00
Southern Foundry No. 4	18.50 to 19.00
Southern Foundry No. 1, soft	21.50 to 21.00
Southern Foundry No. 2, soft	20.00 to 20.50
Gray Forge	17.25 to 17.50
Northern Foundry No. 1	22.65
Northern Foundry No. 2	22.15
Northern Foundry No. 3	21.65
Jackson County Silvery, 8 per cent	25.15 to 26.15
Southern Charcoal	25.50 to 26.00

Finished Material.—In the steel lines the market is strong with some descriptions difficult to obtain. Spikes are scarce and bringing high prices. There is a good jobbing demand for practically the entire list. We quote:

Bars at 1.73c, half extras, with dealers quoting 1.85c for iron and steel out of store. Galvanized sheets No. 10 and No. 12, in car lots are 2.68c. We quote black sheets, No. 27 at 2.53c in car lots of 500 bundles. Black sheets out of store are selling as follows: No. 28, 2.90c; No. 27, 2.70c; No. 16, 2.25c; No. 14, 2.20c; No. 12 2.15c. Tank plates are firm and sell out of store at 2c to 2.10c for ¼-inch and 2.10c for 3-16 Nos. 8 and 10. Beams and channels are quoted at 2.25c to 2.35c from stock and angles at 2.10c to 2.15c for base sizes.

Coke. — The market continues strong and some quotations are again advanced. Ovens are declining to quote on much of the business offered. Contracts for furnace coke are now on a higher sliding scale. We quote prices in the leading coke producing districts as follows:

Wise County, Va. Furnace Coke prompt shipment	$3.15 to 3.50 per ton
Wise County, Va. Foundry Coke on contracts	3.50 to 3.75 per ton
Pocahontas Furnace Coke prompt shipment	2.65 to 2.90 per ton
Pocahontas Foundry Coke on contracts	3.00 to 3.25 per ton
Connellsville Furnace Coke prompt shipment	3.00 to 3.15 per ton
Connellsville Foundry Coke on contracts	3.65 to 3.90 per ton
New River Foundry Coke on contracts	3.25 to 3.65 per ton
New River Furnace Coke, prompt shipment	2.75 to 3.00 per ton

*Wise County, Va., Coke on Furnace contracts is sold mainly on a sliding scale basis for pig iron prices on the following basis: $1.70 to $1.75 per ton on $9.00 pig iron, plus 19 to 20 per cent of the advance on pig iron above $9.00 Birmingham

Old Material.—There is but little change in prices, but the market is firm at quotations with dealers making moderate sales of all descriptions. We quote f. o. b. Cincinnati as follows:

Old No. 1 railroad wrought, net tons	$17.50 to 18.00
Cast machine and foundry, net tons	14.50 to 15.00
Old iron rails, gross tons	23.50 to 24.00
Old steel rails, gross tons	17.50 to 18.00
Old short lengths, gross tons	17.00 to 17.50
Old iron axles, net tons	23.00 to 24.00
Heavy melting scrap, gross ton	19.00 to 19.50
Stove plate, net tons	10.50 to 11.00
Wrought turnings, net tons	10.00 to 10.50
Cast borings, net tons	7.50 to 8.00
Car wheels, gross tons	17.00 to 18.00

The postal deficit for the fiscal year ending June 30, 1906, was $10,516,996 against $14,572,584 the previous year.

NEW YORK.

Heavy Sales of Pig Iron at Higher Prices.—Activity in All Lines of Steel.

Office of THE IRON TRADE REVIEW, Room 1315, No. 150 Nassau St., Oct. 18.

Pig Iron.—The market continues to gain in strength, and prices are still climbing. There have been more heavy sales of basic pig and the tonnage of foundry grades sold during the week was large. Sales of foundry for nearby shipment have been on a somewhat smaller scale, but any offerings for prompt shipment have been taken without question of the advanced prices asked and several times the quantity could have been disposed of if the supply had been available. Melters are clamoring for deliveries on old contracts and many furnaces are behind on contract shipments. This condition is accounted for in various ways. Most producers explain that unfavorable weather conditions and difficulties in securing supplies of raw materials have reduced the output. Melters are also consuming more metal than had been anticipated and are urging advance shipments, a request which at present is not likely to receive a favorable response. There is a natural reluctance on the part of producers to anticipate shipments on contracts made at the low prices prevailing last summer, and it is to be feared that some are falling behind for the same reason.

The most important transactions concerned basic iron. The tonnage reported last week has since been augmented by additional sales to a total of more than 125,000 tons, and more is now under negotiation. The chief buyers in the east are now, however, supplied for the first half of next year, and sellers are not anxious to contract further into the future. Producers are asking $19.25 at the furnace for future shipment, and 50 cents per ton more has been obtained for earlier delivery.

Contracts for foundry for early delivery have been mostly for rather small lots, few mounting above 500 or 600 tons, but there are negotiations on foot for several round tonnages, one for 5,000 tons. Supplies are reaching the market from all sources, but even these odd supplies are diminishing and the result is that prices are being forced steadily upward. No. 2 foundry for prompt shipment has been sold for $22 and upward, delivered, depending upon the locality. Alabama furnaces have obtained $18 and $20, Virginia producers from $20 to

$21, and northern furnaces from $21 to $22 for the same grade, all at the furnace and for shipment during the present year. Sales of foundry grades for the first and second half of 1907 have been large, quantities ranging from 100 tons to 10,000 tons. There was one sale of 1,200 tons, another of 1,000 and a third of 500 tons, all for first quarter. During the past few days prices for first quarter have advanced about 50 cents per ton, and the indications are for still further advances unless shipments improve without delay.

A cargo of foreign iron is due to arrive in Boston in a very few days, the last 50 tons of the 2,000-ton shipment having been disposed of in Connecticut for delivery within ten days. No arrangements for further shipments have been reported. The great demand for metal on the continent tends to check the movement in this direction.

The following are prices of pig iron at tidewater for future delivery, spot prices being too irregular to quote:

Northern No. 1 Foundry	$21 50 to 22 50
No. 2 Foundry	21 00 to 22 00
No. 2 Plain	20 50 to 21 50
No. 1 Southern Foundry	20 50 to 21 50
No. 2 Southern Foundry	20 00 to 21 00
No. 3 Southern Foundry	19 50 to 20 50
No. 4 Foundry	19 00 to 20 00

Certificates and Contracts.—The market has been dull but strong. There was one sale of 100 tons foundry contract for November delivery at $20. On the Produce Exchange the following prices were made on call:

Standard Foundry Contracts.

	Bid.	Asked.
October	19.50	20.25
November	19.50	21.00
December	19.50	21.00
January	19.00	20.00
February	19.00	20.00
March	19.00	20.00

Finished Iron and Steel.—New orders for steel rails and structural material have been comparatively light, the most interesting transactions of the week being a supplementary order for 25,000 tons of rails placed by the Baltimore & Ohio railroad, and the contract for the material for the new Singer building in New York, which is to be supplied by Milliken Bros., Inc. This contract is interesting, not for the tonnage of steel required, but on account of the great height of the building which will be higher than any similar structure hitherto erected. About 8,000 tons of shapes will be required. Among other contracts were: 2,000 tons of steel for an extension of a cement plant in eastern Pennsylvania, 325 tons required in the construction of the Western Realty building in San Francisco, both of which went to the American Bridge Co., and 2,100 tons for the Academy of Music building in Brooklyn. There were a number of small bridge contracts, but none of large tonnage. Transactions for 8,000 tons of bridge material for the New Haven & Hartford railroad are pending.

In the rail market the question of delivery is paramount. A large tonnage which has been pending for some weeks is still awaiting a decision on the time of shipment. With the exception of the order placed by the Baltimore & Ohio railroad there were no large transactions. The Chicago & Southern Indiana railroad has bought 6,000 tons; the Meadville & Conneaut Lake Traction Co., 2,000 tons.

The plate market has been in a very satisfactory state, inquiries being plentiful for tank, boiler and ship business. A part of the Philadelphia filtration pipe contract has been secured by the Lukens Iron & Steel Co. which is to furnish 1,000 tons in plates 7-16 inches thick, 30 feet long and 6½ feet wide. Iron bars are active, it being difficult to secure material for less than 1.65 base, Pittsburg. Steel bars, while the price is nominally unchanged, are selling at a premium.

The following are prices at tidewater: Angles, 3 to 6 inches x ¼ inch and heavier, 1.84½c; beams, 3 to 15 inches, 1.84½c; tees, 3 x ¼ inch and heavier, 1.89½c; plates, carloads, tank, 1.74½c; flange, 1.84½c; marine boiler, 2.41½c; refined iron bars, 1.74½c to 1.84½c; soft steel bars, 1.64½c to 1.84½c; sheets, No. 28 black, 2.50c.

Old Material.—The market is comparatively quiet after the considerable sales of heavy melting steel scrap made earlier in the week. The total sales amounted to above 25,000 tons in the local market at prices ranging from $18 to $18.50 delivered at the purchaser's mill in eastern Pennsylvania. There were also sales of 350 tons of cast scrap to local foundries, the price being $17.50 for ordinary and $19 for strictly machinery. The following are prices approximately f. o b. tidewater.

Old iron rails	$25.00 to 25 50
Old steel rails, long lengths	16.50 to 17.00
Old steel rails, short pieces	15 50 to 16.00
Relaying rails	25.00 to 26.00
Old car wheels	18.00 to 19.00
Old iron car axles	29.00 to 30 .00
Old steel car axles	20.00 to 21.00
Heavy melting steel scrap	16.00 to 17 00
No. 1 railroad wrought scrap	19.00 to 20.00
Iron track scrap	18.00 to 19.00
Wrought pipe	13.50 to 14.00
Cast borings	11.00 to 11.50
Wrought turnings	12.50 to 13.75
Heavy Cast Scrap	16.50 to 17.50

No. 3 blast furnace of the Carnegie Steel Co.'s South works at Sharon, Pa., blew out its bell Oct. 13

PHILADELPHIA.

Highest Prices in Years Being Paid for Spot Iron.

October 16.

Pig Iron.—The local situation may be summed up in the remark of a dealer today, who stated that he had just sold 100 tons of No. 1 X foundry for spot delivery to an old customer at $25.50 a ton. He didn't want to make the sale, but the buyer cheerfully paid the price asked, which is said to be the highest reached since 1900. The market continues extraordinarily strong and active, and the publication of the figures of September production, showing the first gain in several months, seems to have been more than offset by the growing anxiety as to the ore situation, with its likelihood of materially higher prices, and the fear of being caught with short stocks in a severe winter. There are still some belated big buyers, but it is mainly the smaller ones who have been caught. The Pennsylvania railroad has recently bought 10,000 tons of pig iron for its Altoona shops, and for southern car-wheel iron is said to have paid $23 a ton at the furnaces. Basic iron is very scarce, and the outlook for it is not brightened by the fact that one of the basic furnaces in the Lehigh valley has just blown out for relining, which will take several weeks. The demand for it may be judged by the price, $19.85, paid for an off brand by an anxious buyer. Standard gray forge is also stronger and in lively demand. High as prices are, they still show a rising tendency, much to the regret of the more conservative furnace men, who fear that a reaction will be inevitable. Most of the buying now being done is for the second quarter of 1907, and few producers will take an order for 1906 delivery without adding a heavy premium. Prices may be quoted about as follows:

No. 1X Foundry	$23 00 to 24 00
No. 2X Foundry	21.50 to 22 75
No. 2 Plain	20 75 to 22.25
Standard Gray Forge	18.50 to 1 .50
Basic	19.50 to 20 25
Low Phosphorus	25.00 to 26.00

New Material.—Business continues most satisfactory in all departments, without any notable features calling for special comment. The mills have all they can do for several months, and there are still large contracts to be given out by the railroads and other big consumers. Prices are without essential change, as follows: Beams, channels and angles according to specifications, 1.83½c to 2c; refined iron bars, 1.83½c to 1.88½c; steel bars, 1.78½c to 1.83½c; plates, 1.73½c to 1.83½c.

Old Material.—The mills are buying quite freely, and prices are again on the up grade. Several advances have been made since last week, and prices may be quoted as follows:

Old steel rails	$18.50 to 19.00
No. 1 steel scrap	18.50 to 19.00
Old steel axles	22.50 to 23.00
Old iron axles	31.00 to 32.00
Old iron rails	26.00 to 26.50
Old car wheels	20.50 to 21.00
Choice scrap, R. R. No. 1 wrought	21.75 to 22.25
No. 1 yard scrap	20.00 to 20.50
Machinery scrap	18.50 to 19.00
Low phosphorus scrap	23.00 to 23.50
Wrought iron pipe	16.00 to 16.50
No. 1 forge fire scrap	15.50 to 16.00
No 2 forge fire scrap, ordinary	12.00 to 12.50
Wrought turnings	14.00 to 14.50
Axle turnings, heavy	15.00 to 15.50
Cast borings	11.00 to 11.50
Stove plates	14.00 to 14.50

BIRMINGHAM.

Pig Iron Strong.—Raw Material Supply Improved.

October 15.

The pig iron mart in this section is strong, the furnace companies not being very anxious to get many orders for their product for delivery during the first three months of the coming year, and they are even selling carefully for the second quarter of 1906. The sales already booked aggregate well. Quotations are firm and no iron is being sold, as far as can be learned, for delivery during the first six months under $16 per ton, No. 2 foundry. The make in this state shows but little, if any improvement. The raw material supply is somewhat improved, as the out door work is not interfered with by incessant rains and the transportation facilities are somewhat better. The car shortage is still felt in the coal fields, but there is a much better condition all around than was noted two weeks ago.

Metal Market

NEW YORK.

October 15.

Pig Tin.—There has been less activity in the market during the week both here and abroad. Today the market is firm but quiet.

The following are today's quotations: Spot and October, 42.50 to 42.75; November, 42.25 to 42.50; December, 42.00 to 42.25; London, £195 15s and £194 15s. Arrivals for the month to date, 1,930 tons. Afloat, 2,105 tons.

Copper.—There has been a strong speculative demand which forced prices still higher. At present the tone is strong. Today's quotations: Lake, 21½ to 22½; electrolytic, 20¾ to 21¾; casting, 20¾ to 21½; London, £96 2s 6d and £99 5s and £99. Exports for the month to date, 6,959.

Lead.—There is a firmer tone and a little more active inquiry. Today's quotations: 5.85 to 5.95; St. Louis, 5.85. London, £19 10s.

Spelter.—The tone has improved and the market closed firm. Today's quotations: 6.20 to 6.25: St. Louis, 6.10; London, £28 5s.

Antimony.—There has been considerable activity both in spot and futures. Cookson's, 25c to 25½c; Hallett's, 24c to 24½c; other brands, 23c to 24c.

CHICAGO.

October 16.

In all its branches, the metal market is extremely strong. Demand is active and premiums are being paid to insure prompt shipment. The speculative element is still in control of the situation, and their operations have resulted in higher prices on copper, pig tin and lead. There is no spread between Lake and Casting copper, both selling at 24c Chicago in carload lots. Pig tin is firm at 45¼c; spelter, 6.50c to 6.60c; lead, desilverized, 6.10c to 6.15c; all for carload lots, Chicago delivery. Sheet zinc is without change at 7.75c list f. o. b. LaSalle in car lots of 60-lb. casks. Cookson's antimony is 28½c; other grades, 26½c to 27½c. There is a good demand for old metals and prices are higher. We quote dealers' buying prices, as follows: Copper wire, 18¼c; heavy copper, 18c; copper bottoms, 17½c; copper clips, 17¾c; red brass, 17½c; red brass borings, 14½c; yellow brass, 13c; yellow brass borings, 11½c; light brass, 9½c; lead pipe, 5.40c; tea lead, 5c; zinc, 5c; pewter, No. 1, 26c; tin foil, 32c.

ST. LOUIS.

October 15.

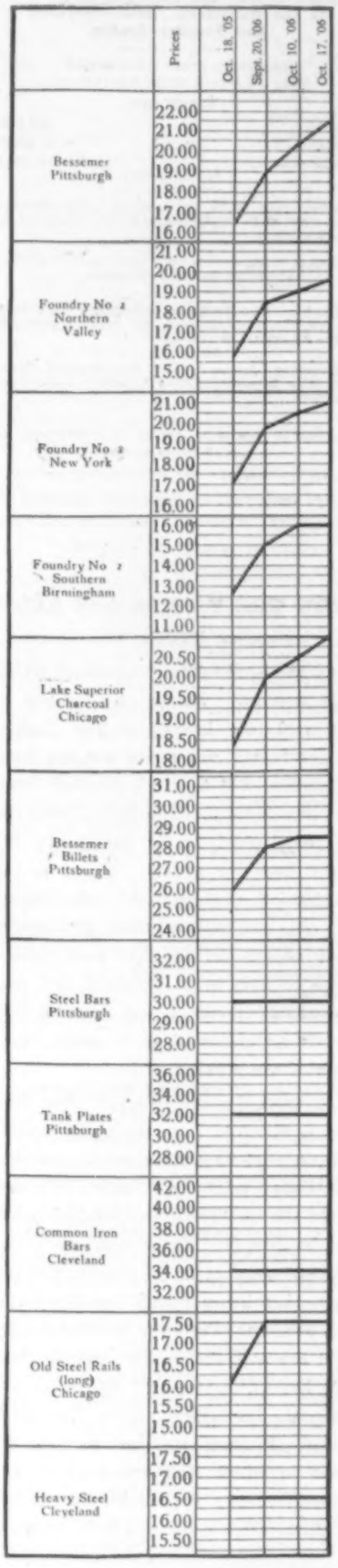
Lead was quiet but firm today at $5.87½ to $5.90 for Missouri brands. Special soft brands are held higher. Two hundred tons of Missouri were sold Tuesday at $5.82½, after which the price was advanced.

Spelter was quoted today at $6.07½, with demand limited. Three hundred tons were sold Friday at $6.05.

A movement is on foot among the purchasing agents in the Missouri-Kansas field to reduce the purchase of zinc ore to an actual dry basis, deducting for every pound of moisture carried with the ore. Advantage is being taken of the large stock of unsold ore in the bins to enforce this new ruling, which probably will be pushed stronger than any effort to reduce prices further. Heretofore moisture deductions have been made on a guess at 2 to 3 per cent of weight.

PRICE CHART.

(Pig Iron Quotations are For Delivery During First Half of 1907)



THE IRON TRADE REVIEW

Devoted to Iron and Steel Manufacture and to the Machinery, Metal-Working and Foundry Trades.

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October 18, 1906.

IRON ORE VALUES ARE RELATIVE.

Of the chain of consequences which will naturally follow the leasing of the Hill ore lands by the United States Steel Corporation not the least important will be the increased interest attaching to deposits of iron ore in the United States outside of the Lake Superior region. There is the double influence that the Lake Superior ores are now so well pre-empted that newcomers in that field cannot hope to gain much foothold, and that the actual curent market value of iron ore is so enhanced as to make other ores of more value.

It must be remembered that iron ore is different from most raw materials, in that its quality or composition exercises relatively little influence upon the quality of the finished product as prepared for actual use. The finished product is, of course, not pig iron, that being purely an intermediate product. Pig iron is substantially iron ore with the oxygen and the fluxible impurities removed, and some additional impurities, from the fuel, added. Finished steel products in the form in which they are used do not contain to any measurable extent impurities which could not have been removed had it been desirable, commensurate with the expense, to remove them.

The availability of a given iron ore, then, does not depend upon the quality it irremediably imparts to the finished product, but upon the cost involved in producing from it the desired quality of finished product.

When Lake Superior ores were discovered, they began at once to take preference over ores previously used. They could be used in their natural condition, with a lower coke consumption in the smelting, and later as the great steel processes came to be employed so extensively, a large part was found so low in phosphorus that the acid Bessemer steel process could be employed in preference to the then much more expensive basic open-hearth steel process, which would be required for the reduction of phosphorus. As the cost of mining and transporting Lake Superior ores was reduced, the region tributary to these ores grew, and local deposits were abandoned,—in some cases it is true, on account of their practical exhaustion,—but in many cases purely because the Lake Superior ores had become the cheaper.

With the continued advance in the cost of Lake Superior ores, the trend should have already set in the opposite direction, but it has not. While the American iron trade makes sweeping changes with facility, there is too much of a tendency to follow example. Changes have come so rapidly that American iron makers have not had time to make all that were or could be suggested. Had there not been the continued necessity for sweeping changes, there is no doubt that many improvements would have been made earlier as, for instance, by-product coking and blast furnace gas engines. Manufacturers abroad were ahead of us in these things partly, though of course not wholly, because they had more time to think.

The consummation of the Hill ore land lease will compel more deliberate thought about other ores. There are other deposits which are well known, and undoubtedly there are others yet to be discovered. Of those which are known, some are comparatively lean and require larger quantities of coke and flux to be smelted. Others are so lean as to require concentration. Others must be roasted to remove sulphur. Others are far from fuel or centers of consumption, and require improved transportation facilities. These are simply matters of expense. With every rise in the market value of Lake Superior ores, a greater expense is permissible that these ores may be utilized. With every rise of a single cent in the value of the two thousand millions — or whatever the quantity may be—of tons of ore in the Lake Superior region, millions of tons of ore in other parts of the country are automatically raised to a competitive basis. The free gift only awaits the putting forth of energy and skill that it may be given utility.

With the tendency to follow the mass, it is probable that the American iron trade has delayed too long, in waiting almost to the present, for a fuller exploitation of various iron ore deposits. Lake Superior ores were already under a heavy disadvantage, through their distance from consuming centers, before they were given so great a value in the ground. The advantage of having a good uniform ore delivered at one's door with no involvement other than the paying of monthly bills and the tying up of a little capital for the winter's supply, no large capital outlay and no expenditure of energy and skill, undoubtedly tempted the adoption of Lake Superior ores to a somewhat greater extent than natural conditions would have dictated, because, as has been said before, American iron manufacturers were very busy. The Hill ore deal supplies a sudden and powerful influence which will disturb conditions and produce a strong current in this new direction.

There is good reason to believe that when there is more thorough investigation by iron makers of costs of mining, concentration, roasting, etc., in connection with other deposits, surprise will be produced that these

things were not more carefully studied before.

Imports are also to be considered. When there were abundant deposits of steam shovel ore to be had at a cost in the ground of but a few cents, the duty of 40 cents a ton on imported iron ore looked large. It presents quite a different aspect under present conditions, and of course is not likely to be advanced. By-product coke making, moreover, makes it easier to smelt the ore at a point removed from the coal field, and thus may tend to encourage tidewater steel plants.

OBITUARY.

Sir Richard Tangye, head of the engineering firm of Tangyes, is dead at London. He was born in 1833.

Samuel J. Chapman, secretary and treasurer of the Manistee Iron Works Co., Manistee, Mich., died Sept. 14.

Joseph H. Glidden, who won fame and fortune through his idea of attaching the bevel-pointed barb directly on the wire, died recently in his home at De Kalb, Ill., at the age of 93.

Angelo H. Knapp, president of the Passaic Steel Co. since its organization a few weeks ago, died of valvular discase of the heart Oct. 11, at his home, Paterson, N. J. He was 48 years old.

Henry Chess, a pioneer manufacturer of nails and tacks, died at his home in Pittsburg, Oct. 6. Mr. Chess was born in Pittsburg 71 years ago, and lived in that city during his entire life. He is survived by his widow and two brothers, Harvey and Walter, who are with the Central Expanded Metal Co.

John Stuber died Oct. 14 at his home in Cleveland, Ohio, aged 67. He was born in Germany, coming to America in 1866, and locating in Cleveland. He was one of the organizers of the Standard Foundry & Manufacturing Co. of that city, holding the position of superintendent until about ten years ago when he resigned to accept a similar place with the Ohio Foundry Co.

The Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa., is working double shift, and is increasing its general equipment to keep up with orders. Its steel and iron casting departments have shown increased output during the past month, those customers who left temporarily during its recent labor agitation having returned and new customers having been added. An especially strong demand is noted for locomotive castings, heavy mill machinery castings and high pressure steel fittings.

PERSONALS.

J. P. Houston has taken up his new duties as general manager of the Portsmouth Steel Co., Portsmouth, Ohio.

James C. Hallady has been appointed by the Bethlehem Steel Co. as representative in charge of its railway department with headquarters in Chicago.

E. M. Tutweiler, formerly at the head of the Tutweiler Coal & Iron Co., and now interested in iron and coal properties in Alabama, has just returned from a European trip.

Frank Englehardt, formerly sales agent for the Filer & Stowell Co., has been made Chicago sales agent of the Wisconsin Engine Co., with office at 735 Marquette Bldg.

Charles M. Schwab, president of the Bethlehem Steel Co., was a recent caller at the White House, but states that his interview with the president was without public interest.

Robert H. Hammond, until recently master mechanic of the furnace department of the Duquesne Works, has resigned to become general master mechanic of the Bethlehem Steel Works.

W. H. Ham, formerly reinforced concrete engineer of the Tucker & Vinton Corporation, is now the concrete engineer of the General Fireproofing Co., Youngstown, O., and 156 Fifth avenue, New York City.

Quimby Lewis, master mechanic at the Haselton furnace of the Republic Iron & Steel Co., Youngstown, Ohio, has accepted a position with the Allis-Chalmers Co., at Milwaukee, Wis., and is succeeded by Bert Rotherwell.

John L. Harrington, chief engineer of the Locomotive & Machine Co., Montreal, Can., has become associated with J. A. L. Waddell under the firm name of Waddell & Harrington, consulting engineers, with offices in Kansas City.

Judson Draper, night superintendent of the blooming mill at the Bessemer plant of the Republic Iron & Steel Co., Youngstown, O., has resigned to become assistant superintendent at the plant of the Inland Steel Co., Indiana Harbor, Ind.

A. N. Spencer, technical engineer of the Harbison-Walker Refractories Co., Pittsburg, Pa., has returned from a six months' trip among the smelters in Mexico, the western and southwestern parts of the United States and British Columbia.

G. L. L. Davis, heretofore sales agent of the Scullin-Gallagher Iron & Steel Co., at New York, has been made general sales agent, with office at 42 Broadway, New York, of the General Castings Co., whose works and general office are at Verona, Pa., near Pittsburg.

T. Roberts, chief mechanical engineer of the South Australian government, has been appointed, subject to the ratification of the various Australian governments, consulting mining engineer for the whole of Australia, with an office in London.

James Jardine, for a time manager of Bell's machine shop, Sacramento, Cal., and later government inspector at the Union Iron Works, has been made master mechanic of the Northern Electric Railroad Co., Chico, Cal. The company will build its own cars.

Monroe G. Ogden, heretofore general southern agent of the American Car & Foundry Co., has opened an office at Macon, Ga., for H. A. Clark & Co., sales agents in the south for the Middletown Car Works, Harlan & Hollingsworth Corporation and the King Lawson Car Co.

William R. Eaches, formerly with the Carpenter Steel Co., Reading, Pa., has been made superintendent of the projectile department of the Crucible Steel Co. of America, at Harrisburg. N. J. Grant Bechtold, associated with Mr. Eaches at the Carpenter plant, has also gone to Harrisburg.

Prof. H. M. Howe of Columbia University, has received from the Czar the order of the Knighthood of St. Stanislaus in acknowledgment of his work in metallurgical research. The honor was conferred by Baron Rosen, who presented the patent of knighthood and also the star and cross of the order.

James Ross of Montreal, by reason of ill health, is withdrawing from active participation in Canadian financial affairs, having recently retired from the presidency of the Mexican Light & Power Co. He was formerly president of the Dominion Iron & Coal Co., and still retains the presidency of the Dominion Coal Co.

SOUTHERN STEEL BUYS LARGE PROPERTIES.

Birmingham, Ala., Oct. 16.—The Southern Steel Co. has purchased the properties of the Georgia Iron & Coal Co., thereby acquiring the 200-ton blast furnace at Rising Fawn, Ga., 51,000 acres of coal and ore lands, including an immense body of manganese ore, 330 coke ovens and about 40 miles of railroad. The deal involves the expenditure of more than $2,000,000. It gives the Southern Steel Co. a total of four furnaces, a steel plant and a finishing plant. The company recently completed negotiations for the purchase of the Birmingham Mining Co. properties, including some large ore bodies with two or three mines in full operation thereon.

A VISIT TO LAKE SHORE SHOPS.

The Cleveland Chamber of Commerce several years ago inaugurated the plan of giving what it calls an annual acquaintance excursion to the various industrial plants of the metropolis of Ohio. The objects of these excursions are to cultivate acquaintance among the members and to give them more complete information in regard to the industries of their own city. Last Thursday about 200 members of the Chamber met at luncheon and then, under the direction of the acquaintance committee, of which E. C. Collins, traffic manager of the Pittsburg Steamship Co., is chairman, visited the shops of the Lake Shore & Michigan Southern railway at Collinwood, a suburb of Cleveland. The building of these shops was commenced in April, 1901, and finished December, 1904, at a cost of $1,771,314.17. They are located about six miles from the Cleveland Union depot, and as the train bearing the members of the Chamber moved toward Collinwood, a man with a megaphone in each car called attention to the different plants along the route, giving statistics to show the importance of Cleveland as a manufacturing city. For example, in connection with a foundry which was passed it was stated that Cleveland manufactures more light castings than any other city in the world. Upon arriving at Collinwood the gravity switch was operated for the benefit of the visitors and watched with great interest. The various shops of the company were then visited, including the locomotive shop 530 x 245 feet, blacksmith shop 80 x 418 feet, wood mill 70 x 300 feet, freight car shop 125 x 325 feet, coach shop 100 x 335 feet, paint shop 160 x 335 feet, store house 60 x 300 feet, and the power house, which measures 85 x 130 feet and is connected with all other buildings by means of tunnels carrying steam and water pipes and electric light and power wires. The grounds contain a total of 57½ acres, and the buildings have a total floor space of 524,000 square feet. At the present time there are 1,216 men employed on a nine-hour shift. The annual pay roll is $900,000. The annual capacity of the shops is as follows: Number of engines overhauled, 566; freight cars repaired, 7,995; passenger, mail and express coaches repaired, 883; number of passenger cars built, 60; number of caboose cars built, 91. The visitors were surprised and pleased by the variety of metal-working and wood-working industries represented and by the excellence of equipment in all departments.

MOTORS FOR CEMENT MILLS.

(Special Telegram.)

Chicago, Oct. 17.—The Universal Portland Cement Co., the new subsidiary company of the United States Steel Corporation, has placed contracts with the General Electric Co., Schenectady, N. Y., for 248 induction motors, three-phase 25-cycle, aggregating 9,485 horsepower, for installation in the new plants to be erected at Buffington, Ind., and Pittsburg, Pa. This transaction is somewhat unique in that the list of motors includes 51 100-horsepower motors, 166 2-3 revolutions per minute, and 22 40-horsepower motors at 166 2-3 revolutions per minute, which are to drive the tube and ball mills respectively, with only one gear reduction. The order also includes 898 40-horsepower motors of 500 revolutions per minute with vertical shafts, which are to be used to drive the vertical grinding mills. Another feature of interest is the fact that variable speed induction motors will be used for driving the rotary kilns, thereby greatly increasing the efficiency of the kiln and the daily output.

Will Build at Toronto.—An application has been made to the city authorities of Toronto, Can., on behalf of the Canadian Northern railway interests for 50 acres of land on or near Ashbridge's bay, in the eastern part of Toronto, as a site for extensive blast furnaces, rolling mills and other dependent industries. The Canadian Northern will next year extend its James Bay railway from Parry sound north to Moose mountain, where it controls valuable iron ore deposits, hitherto undeveloped owing to the want of railway communication.

Colorado Change.—David C. Beaman retired as a director of the Colorado Fuel & Iron Co. at the annual meeting of the stockholders, which was held in Denver, Colo., Oct. 15, and Robert C. Clowry, of New York, was elected his successor. With this exception the old board was re-elected. Mr. Beaman will continue to serve as secretary and general counsel of the corporation.

Dr. George R. Nunelly of Bevier, Mo., has announced the discovery of a method of liquifying coal, so that it can be pumped from a mine like oil, though retaining its combustible qualities.

STEEL MILLS FEEL IRON SHORTAGE.

The extent of the present pig iron scarcity was brought forcibly to the attention of two large concerns during the past week. The rail mill and converter at the Pueblo plant of the Colorado Fuel & Iron Co. were shut down Oct. 9, the output of the furnaces not being sufficient to meet the needs of the various departments of the company. The new steel mill of the Youngstown Sheet & Tube Co., Youngstown, O., was also idle all week because of a scarcity of pig metal. Operations were resumed Sunday night, however, and it is stated that hereafter no difficulty is anticipated, as an adequate supply of iron is coming in from five furnaces in the vicinity. During the brief period of idleness, Julian Kennedy, who planned the mill, went over the machinery and made a number of minor changes. The run of the mill since it was first started has been remarkable. The machinery has run in fine style and some very large turns have been made.

CHERRY VALLEY PROPERTIES SOLD.

The properties of the Cherry Valley Iron Co., Pittsburg, with Fannie Furnace at West Middlesex, Pa., and Cherry Valley Furnace at Leetonia, O., have been sold to A. W. Thompson, who lately became the head of the Inland Steel Co. The company was controlled by Joshua W. Rhodes, sales being made by Joshua W. Rhodes & Co., Peoples Bank Building, Pittsburg. The Connellsville coking operations formerly conducted by the firm were this summer transferred to a distinct company, controlled by Mr. Rhodes. The firm of Joshua W. Rhodes & Co. will retire from business.

May Consolidate.—Negotiations are now pending that may lead to the amalgamation of the Robb Engineering Co., of Amherst, Nova Scotia, and the Robb-Mumford Boiler Co., of South Framingham, Mass. D. W. Robb is managing director of both concerns. A meeting of the shareholders has been called for Oct. 23 to consider the proposition.

In order to enlist the co-operation of the coal and iron interests of the east, the American Mining Congress, which heretofore has been holding its annual sessions at some point in the precious metal field, is planning to hold next year's session at an eastern city.

METAL TRADES MAKES BIG GAIN.

The semi-annual meeting of the Administrative Council of the National Metal Trades Association was held in the committee room of the Union Trust building, Cincinnati, on October 16 and 17. A number of important subjects were under consideration, but a full report of the meeting has not as yet been given out. The finance committee found the funds and accounts of the association in satisfactory condition. The report of Acting Commissioner Robert Wuest stated that since the annual meeting last March, the membership has increased 47 per cent.

Among the matters up for consideration was the question of re-districting the territory on account of the number of new branches and the increase in membership. The southern district opened offices in Atlanta, Ga., last week with J. W. Glover of the Glover Machine Works, of Marietta, Ga., as secretary and Roger Davis as assistant secretary.

W. D. Sayle of the Cleveland Punch & Shear Works Co., Cleveland, O., president of the association, presided at the meeting. The other members of the council in attendance were: M. H. Barker, of the American Tool & Machine Co., of Boston, Mass.; F. K. Copeland, of the Sullivan Machinery Co., Chicago, Ill.; William Lodge, of the Lodge & Shipley Machine Tool Co., Cincinnati, O.; O. B. Kinnard, Kinnard-Haines Co., Minneapolis, Minn.; C. E. Hildreth, of the Whitcomb-Blaisdell Machine Tool Co., Worcester, Mass.; C. Bermingham, of the Canadian Locomotive Co., of Kingston, Ont.; G. K. Garvin, of the Garvin Machine Co., of New York, N. Y.; W. M. Taylor, of Chandler & Taylor Co., Indianapolis, Ind.; Howard P. Eells, of the Bucyrus Co., S. Milwaukee, Wis.; J. Kirby Jr., of the Dayton Manufacturing Co., Dayton, O.; H. N. Covell, of the Ledgerwood Manufacturing Co., of Brooklyn, N. Y., and Robert Wuest, the acting commissioner.

PRODUCTION OF COKE.

The total coke production in the United States during 1905 was 32,231,129 net tons, compared with 23,661,106 tons in 1904, an increase of 8,570,023 tons, or 36.22 per cent. The production in 1902 was 25,401,730 tons and in 1903 it was 25,274,281 tons. In 1905 there were made in by-product ovens 3,462,348 tons of coke, or over 10 per cent of the total production. The total production of coke as late as 1880 amounted to only 3,338,300 net tons. The value at the ovens of the coke production of 1905 was $72,476,196, a gain of $26,331,255, or 57 per cent, over the value of the coke production of 1904. The average price of "all the coke made and sold or consumed" in 1905 was $2.25 per ton, against $1.95 in 1904. The quantity of coal used in the manufacture of coke in 1905 was 49,530,677 net tons, valued at $50,614,674. The total number of 87,564 ovens in 1905 included 3,159 by-product ovens, of which 2,988 were operated during the year.

THE LABOR SITUATION.

The Fairbanks Co., Springfield, Ohio, has adjusted its differences with its piano plate molders, and has resumed operations after an idleness of 14 weeks. It is understood that the molders received a small percentage increase, instead of a flat increase, as asked for. The adjustment is on practically the same basis as that recently made with Cleveland molders employed in similar work.

The General Electric Co. has voluntarily reduced the hours of labor of the employes in the plant at Lynn, Mass., wages remaining the same. Hereafter both men and women will work 55 hours per week, and enjoy the Saturday half holiday the year round.

A strike has been called at the plant of the Star Brass Mfg. Co., Boston, Mass., 77 men, including machinists and brass finishers being called out for a nine hour day. This concern is not a member of the National Metal Trades Association.

A number of molders who recently went on strike at the Carondelet Foundry Co.'s plant, St. Louis, Mo., have ventured into business for themselves, under the name of the Liberty Foundry Co., and are understood to be erecting a foundry in South St. Louis.

A permanent injunction has been granted, restraining the strikers of the tin mill of the McClure Co. from further interference with the operation of the Washington and Canton township plants of that company. There has already been considerable violence.

The Wabash bridge being erected by the American Bridge Co., near Clairton, Pa., was dynamited Oct. 12, supposedly by strikers.

Fifteen hundred mill men have gone on strike in San Francisco, reducing the output of building material in that section 80 per cent.

Twelve thousand British workmen in the ship building trade on the Clyde are now on a strike for a five per cent advance.

INCREASED ORE SHIPMENTS.

After the rough weather of last week, the ore shipments braced up materially and for the past few days there has been a very active movement. The total at the Missabe docks for the week fell off somewhat from that of the preceding seven days, but gains were made at Two Harbors and Allouez. The figures as given out are: Two Harbors, 232,431 tons; Duluth, 310,097 tons, and Superior, 224,733 tons, a total of 767,261 tons, or 13,194 tons better than the preceding week. For the same week in 1905, the figures are: Two Harbors, 236,938 tons; Duluth, 276,110 tons, and Superior, 189,701 tons, a total of 702,749 tons, which is 64,512 tons less than this year. The shipments this year up to date are now 2,489,503 tons ahead of last year, the corresponding totals being for 1906, 20,510,423 tons as against 18,020,920 tons in 1905.

BUYS YOUNGSTOWN PLANT.

The United Engineering & Foundry Co., Pittsburg, Pa., has purchased outright the plant of the Mahoning Foundry & Machine Co., Youngstown, Ohio, together with eight acres of land, with the intention of increasing its iron foundry facilities, and also of establishing a steel casting foundry in that district. This plant will be operated as a part of the Lloyd-Booth department of the United Engineering & Foundry Co.

Coking Coal Sale.—The Jones & Laughlin Steel Co. has purchased 4,000 acres of coking coal land in Washington county, Pa., from the Pittsburg Buffalo Coal Co. This land adjoins the present holdings of the Jones & Laughlin Co. in this district.

W. H. Becker of Cleveland, Ohio, has placed an order with the American Shipbuilding Co. for a 7,500-ton steamer to come out next fall. A 9,000-ton vessel will also be built for S. P. Cranage, of Bay City, Mich.

The Buffalo, Rochester & Pittsburg railway has placed an order with the American Locomotive Co. for 20 locomotives of extremely heavy type. The same road has also ordered 500 steel cars.

H. Kander, Bowling Green, O., reports heavy trade in cast scrap, brass and other metals. The business was started in 1902, and has been increasing steadily since.

The National Association of Manufacturers will hold its annual convention at Madison Square Garden, New York, the last week in October.

MINIMUM SHIPMENTS

Will Probably be Made Next Year by Corporation from Great Northern Lands.

Office of THE IRON TRADE REVIEW, Duluth, October 15.

Last year the Oliver Iron Mining Co. produced from its mines on the Mesabi 12,724,194 tons of ore out of the total shipment of 20,153,699 tons from that range. This year the proportion will be larger, as it will also be next year in all probability, but not as the result of the newly acquired properties. In the first place the minimums do not amount to a greater or as a great a shipment as has been obtained from one new mine in its first year. The Morris in its first year produced 1,070,937 tons. In the second place, it seems improbable that more than the minimums will be mined for the present for several reasons. The mining department of the corporation, the Oliver Iron Mining Co., has not yet been officially notified of the transaction, which means that no exploration work has yet been planned and it is now far along toward the end of this season. The present value of ore as represented by the market price does not justify mining more than the lease requires on a royalty basis of 80 cents and it is without question true that the price of ore will rise more rapidly than the royalty on the ores in question. It may even be possible, therefore, that the corporation will take advantage of the terms of the deal which permit it to ship in such yearly quantities as it chooses, the royalties being determined entirely by the minimums. Another reason for obtaining its requirements of ore from its old holdings to as great an extent as possible is the fact that some of its low royalty leases have not a great while longer to run.

A Variety of Conditions.

As the details of the transaction in ore land between the Great Northern railroad and the United States Steel Corporation become more generally known, more of the facts concerning the lands in question come to light. The property involved may be considered entirely as that in which the Great Northern was concerned and that in which the Northern Pacific had interests. The latter holdings amounted to somewhat more than one-third of all the lands. In both cases the lands were held under a variety of conditions, as, for example, only about one-third of the Great Northern's land was owned in entirety. Of about one-half of the property it owned one-half of the mineral rights, in one-sixth it had a controlling interest and the remainder was either held already subject to a mining lease given by purchase or in exchange for traffic contracts or represented simply traffic control with no lease. Of these lands also it is to be remembered that they include the properties of the Pillsbury, Bennett and Longyear interests exclusive of those already under lease to other companies, as, for example, the Mahoning, one-half to the Mahoning Ore & Steel Co. and one-half to the United States Steel Corporation, the Stevenson, operated by Corrigan, McKinney & Co., Leetonia operated by the Interstate Iron Co., etc. These mines, of course, do not enter in to the transfer; in fact, the larger portion of the Northern Pacific's lands has already been leased to other interests, particularly on the eastern end of the range. An entire interest is still held in approximately a thousand acres in township 58, range 17 and other lands in township 56, ranges 24, 25 and 26 and in 55-26. In township 57, ranges 17, 21 and 22 the Northern Pacific has sold a considerable amount of property, simply reserving the mineral rights. The total amount of land involved belonging to both companies is in the neighborhood of 82,000 acres, of which about three-quarters is off of the iron bearing formation as it is roughly outlined.

Gross Exaggerations.

As regards the ore tonnage obtained through this deal, it may be safely said that the current reports of 400,000,000 and 500,000,000 tons are considerably exaggerated save as the expression of a remote possibility. So far as any proving up of the ore bodies already undertaken is concerned, this estimate is certainly too large for, with the possible exception of the ore reserves of the steel corporation, the tonnages owned by the various mining companies are far from accurately known and 100,000,000 tons is probably a much closer estimate of the deposits changing hands. It is true that the great amount of exploration necessary before working these properties may substantiate the larger estimate, but, if one may judge from the lands whose deposits are known and among which the Hill lands are everywhere interspersed on the range, a more moderate estimate seems the more likely.

Reference has been made to the lands of the Pillsbury estate and the Longyear and Bennett interests. Reports have stated that I. M. Longyear's interest amounted to 30,000,000 tons of ore at a valuation of $24,000,000. Both of these figures are purely guess work. While it is understood that the combined properties of the three men comprise a large part of the so-called Hill lands, undoubtedly representing more than 30,000,000 tons, Longyear himself has but a one-quarter interest in a part of them which he obtained for doing exploratory work. In the hard times he was forced to let go of the Stevenson mine, a part of his land which Corrigan, McKinney & Co. subsequently picked up. Whether he had to let any other of his holdings in the Wright and Davis plot go at the same time is not definitely known, but there is no authority for the figure $24,000,000.

Save where the interests transfering the lands are themselves the fee owners, the deal will simply mean the assigning of present leases without change to the steel corporation. Thus, for the lands which the Great Northern owns in fee, the stockholders will receive their share of $1.65 per ton (royalty and freight) for the ore in the land which the Great Northern itself holds on leases, the stockholders will receive 80 cents (freight) plus the difference between the new royalties and the old ones the Great Northern had to pay — a sum that will vary depending upon which properties are worked and the size of their output—and for the other lands the Great Northern will get the 80 cents freight. The other interests represented as owners of or lease holders of land will receive like returns except in the matter of freight, all of which goes to the Great Northern.

It would be impossible to state just what portion of the ore on the Mesabi the steel corporation now controls, but it is safe to say that no possibility is left for any important new competition in steel-making without the discovery of new ranges, unless from such a concern as the Cleveland Cliffs Iron Co., which owns numerous mines. In this connection it may be said that the present situation as a result of the deal will influence a much more rapid exploration of the Cuyuna range and other possible ore fields than would otherwise have occurred. From time to time portions of the lands now dedicated to the uses of the corporation were disposed of by the Great Northern to independent furnace interests. The Leonard mine supplied several interests with a part of their requirements, but now all these are out of the market. The inference is obvious.

IMPLEMENT AND VEHICLE MANUFACTURERS MEET.

DECISIVE ACTION IS TAKEN ON MANY IMPORTANT QUESTIONS.

Consular Service and Foreign Trade Considered.—Mutual Fire Protection is Arranged For.

The thirteenth annual convention of the National Association of Agricultural Implement and Vehicle Manufacturers came to a successful close Thursday, Oct. 11, after a three days' meeting at the Auditorium hotel, Chicago. In attendance, freedom of discussion and results achieved, it was the most prolific meeting held in several years. Nearly three hundred members and guests were registered.

Through the medium of committee reports which were later emphasized in the resolutions, the association again placed itself on record as favoring prompt tariff revision along such lines as will cause the least disturbance of present business conditions; it commended the work of the reclamation service in winning to agriculture 13,600 acres of desert lands and endorsed the recommendations made by the public lands commission prohibiting speculation in lands reclaimed by irrigation; it emphasized its approval of and desire for reciprocity and urged upon congress to make this principle an effective part of the national policy; it recommended the merit system of appointment and promotion in the consular service; suggested the adoption by it members of more systematic methods for the development of foreign trade; urged that every effort be made to bring about interchangeable two-cent flat mileage good on all trains in all territory covered by the following passenger associations: Trunk Line Association, Central Passenger Association and Western Passenger Association; approved the organization of a mutual fire insurance company for its own members and pledged the association's suport to the enterprise, and lastly urged upon congress "the need of encouraging American ship building, or, at least, the owning of shipping interests by Americans."

The election of new officers was made by the casting of one ballot by the secretary for the entire list presented in the report of the committee on nominations. The following are the officers for the ensuing year:

President, H. E. Miles, president Racine Sattley Co., Racine, Wis.

Treasurer, J. B. Bartholomew, president Avery Mfg. Co., Peoria, Ill.,

Vice Presidents, W. N. Rumley, M. Rumley Co., LaPorte, Ind.; H. M. Wallis, J. I. Case Plow Co., Racine, Wis.; C. G. Rowley, Aspinwall Mfg Co., Jackson, Mich.; D. W. Spencer, Johnson Harvester Co., Batavia, N. Y.; R. S. Buch, A. Buch's Sons, Elizabethtown, Pa.; A. E. Mayer, International Harvester Co., Chicago; W. R. Harrison, W. R. Harrison Mfg. Co., Massillon, Ohio; S. D. Porter, Acme Harvesting Machine Co., Peoria, Ill; T. B. Carson, Bettendorf Metal Wheel Co., Davenport, Ia.; A. H. Patch, Clarksville, Tenn.; E. P. Curtis, Richardson Mfg. Co., Worcester, Mass.; Jos. W. Moon, Jos. W. Moon Buggy Co., St. Louis, Mo., and H. M. Wade, U. S. Engine & Pump Co., Batavia, Ill.

H. E. Miles,
Racine, Wis., President.

Executive Committee, Newell Sanders, Newell Sanders Plow Co., Chattanooga, Tenn., chairman; S. E. Swayne, Robinson & Co., Richmond, Ind.; H. M. Kinney, Winona Wagon Co., Winona, Minn.; F. C. Johnson, American Seeding Machine Co., Springfield, Ohio, and A. J. Brosseau, Gale Manufacturing Co., Albion, Mich.

The report of the secretary, J. A. Sanford, showed a balance in the treasury of $540.38. The total revenue for the year was $5,492.07. The total membership of the association, including active and associate members, is 376. Norfolk, Va., was the city selected in which to hold the next annual convention.

Relief from High Prices.

An address of welcome was delivered by Mayor Dunne, of Chicago at the opening of the first session. President Huhlein's opening remarks dwelt on the scope and objects of the association. In discussing tariff, reciprocity and export trade subjects, he said: "The principal raw materials used by our members are steel, iron, lumber and leather, and the advanced prices ruling for these products during recent years have drawn our attention to the relation of the tariff to these advanced prices. Some of our members feel that a lowering of the tariff on the materials referred to is justified and would give us needed relief and that we should demand a reduction accordingly. Conservative men in the iron and steel trades admit that the tariff on iron and steel is excessive and could be reduced without harming any legitimate interest and advise that the reduction be made now while the trade is so favorably situated, that the reduction would not be seriously felt. The export trade in American farm implements like the home trade is increasing from year to year. In 1894, when our association was formed, the exports of farm implements were $5,000,000; in 1900, the exports were $16,000,000; last year, $20,000,000, and for the fiscal year just ended, $24,000,000. Notwithstanding this steady expansion of our export trade, some of our members are concerned about its future, and urge that reciprocity agreements with various countries must be immediately arranged or the trade will suffer."

The report of the executive committee also took up this subject. But in addition to endorsing the proposition, it suggested the appointment of congressional committees for the study of trade opportunities abroad. It called attention to the marvelous wheat fields of the Canadian northwest, 2,000 miles long and 500 miles wide, and of the grain belt in the Argentine Republic, 2,000 miles long and 1,000 miles wide, both territories in crying need of American farm implements.

Should Seek Markets Abroad.

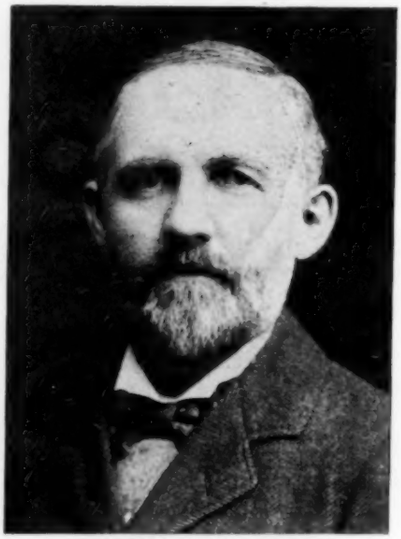
The committee on Foreign Commerce, also discussing the same subject, said. "We must equalize conditions in some way and adopt the broadest possible method by subsidies, or otherwise, so as to place us on a

basis that will enable us to compete with other nations, and, as far as possible, transport our wares at the lowest ruling shipping rates and conditions, and attain the commercial and industrial supremacy of the globe. America should cross either ocean and conquer. We stand not only at the head of the great manufacturing nations of the world, but our output equals that of Germany, France and the United Kingdom combined. We certainly do not need a high protective tariff. We can compete substantially with any country in the world without protection. While labor is cheap in foreign countries, it is not for the work done. If we can work our artisans nine and ten hours a day and secure results, as we do, supported by reciprocity treaties, why should we continue protection?" In the closing paragraph, it added: "We are inclined to urge upon congress the need of encouraging American ship building, or, at least, the owning of shipping interests by Americans. There is no denying the fact that this country is not enjoying the foreign trade that it should. We cannot refrain from urging upon our members greater efforts and more attention to this subject."

The report of the committee on Public Lands and Irrigation, showed that there were 22 irrigating projects under way. Up to July 1, 241 miles of main canal, 116 miles of distributing system, and 388 miles of ditches had been constructed, including dams, headworks, etc. Tunnels having a total length of more than five and one-half miles have been driven. More than 521 miles of telephone lines have been installed and are now in operation; 233 miles of wagon road, many miles of which were cut in solid rock in almost inaccessible canyons, 110 bridges and 300 offices and other buildings have been constructed. There have been purchased for this work 1,873 tons of iron and steel, 7,347,312 feet B. M. of lumber, and 159,623 barrels of cement.

Mutual Fire Insurance.

The plan proposed by the Insurance committee to organize a mutual fire insurance company for the benefit of the members of the association is extremely interesting, and the experiment will be followed with close interest by trade organizations in other lines of industry. The company is to be organized under the laws of the state of Indiana, and articles to that effect have been duly signed. It will be known as the Implement and Vehicle Manufacturers' Mutual Fire Insurance Co., with headquarters in Indianapolis. John W. Waters, who has had sixteen years' experience with New England mutuals, will inaugurate and manage the enterprise. The company will be a member of the Nation Association of Factory Mutual Insurance companies, which confines its liability to isolated manufacturing risks. This affiliation secures a number of decided advantages, among them being a minimum cost of high grade inspection. The company proposes to furnish insurance at cost, the profits being returned to its subscribers in the shape of dividends. It will not insure in conflagration districts



NEWELL SANDERS,
Chairman Executive Committee.

and in fact will only take thoroughly first class risks, although not always insisting upon the sprinkler equipment. Other risks than those owned by members will be insured if up to the required standard.

The committee on patents endorsed the bill introduced into congress by the American Bar Association for the creation of a United States court of patent appeals, to be the final resort for the determination of patent rights.

The second day's session was devoted to the discussion of amendments to the by-laws; to the report of the committee on credits; to the report of the committee on trade conditions and to the reading of a paper on "Tests of Vehicle Woods," by H. D. Holroyd, of the government forestry department. The consensus of the report on trade conditions was that the country is in so prosperous a condition that, whereas a crop failure a few years ago meant mortgages on farms and crops, today it would mean only a withdrawal of the bank savings.

The third and last day of the convention was devoted to the report of the committee on costs and to addresses by representative iron and steel men on conditions affecting the iron and steel trade.

Severn P. Ker, general sales manager of the Republic Iron & Steel Co., was the first to respond, being followed by Fred Krebs, of the Cambria Steel Co., and Mr. Hamilton, of the Illinois Steel Co. Mr. Ker gave a brief history of the vicissitudes of the iron and steel industry within his recollection. In closing he spoke as follows:

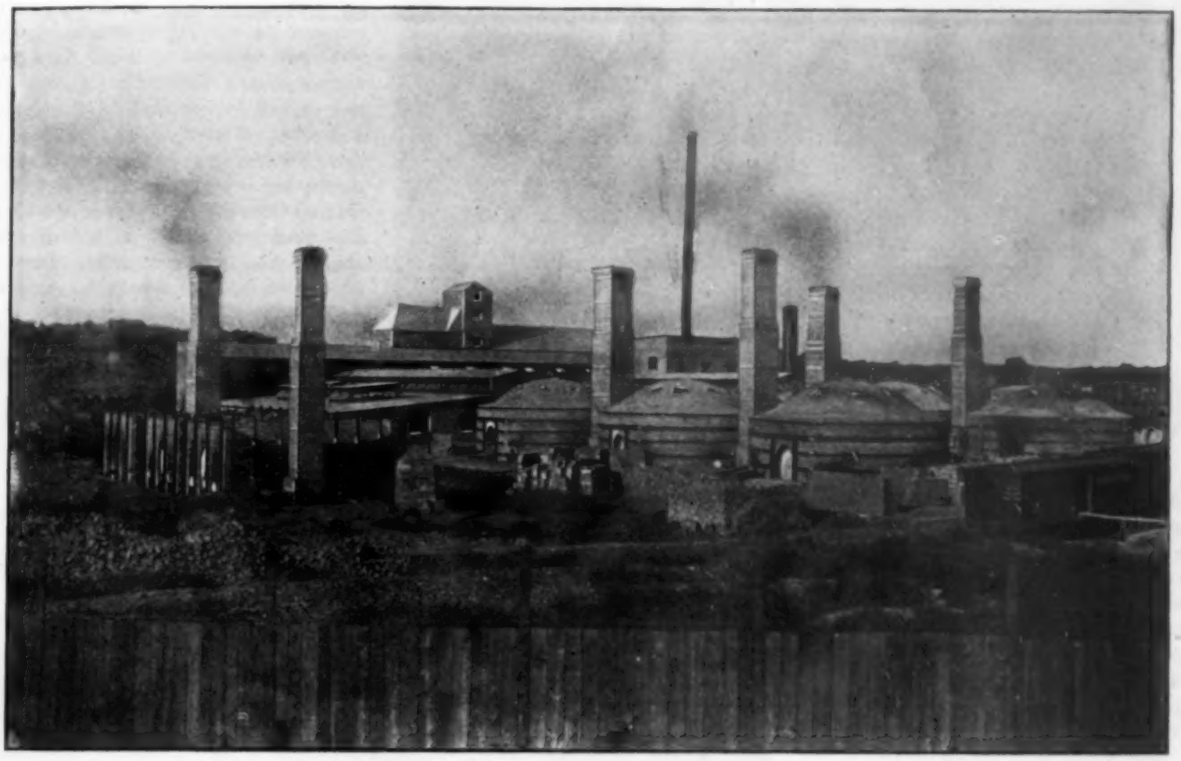
"Prices have advanced very sharply since the days of the depression. I think all of you gentlemen are paying more money for your iron and steel today on an average than you paid in the last twenty years. The cost of producing iron and steel has increased very rapidly. The ore reserves are less. Ore land has a value based on the number of tons of ore in the ground. As that ore is moved the value of the land decreases, and a charge has to be made against that land, otherwise we find ourselves with 100,000 tons of ore in a pile and our assets based on 100,000 tons, but we find we have no ore pile, and we still have 100,000 tons in our assets, so we have to charge that ore with what it costs as we move it out of the ground. Ores are higher. Royalties used to be made on a basis of about 40 or 50 cents a ton. I understand there were even some lower royalties paid. We have read in the papers the last two or three weeks (and I have no other knowledge of the facts except as I see them in the paper) that the United States Steel Corporation has made a lease of the Hill ores, the Northern Pacific ores on a basis that will average them about 85 cents a ton royalty. In addition to the royalty, of course, they have all the labor of digging, mining, moving and transporting and handling the ore, and a tremendous expenditure for equipment. I do not believe that it would be good for the implement manufacturers—I know it would not be for the steel manufacturers—I do not believe it would be for any other manufacturer, for us to contemplate returning to the old basis of credit, and I feel very confident that there is no thoughtful business man in this room who would for one moment be willing to return half-way to the conditions existing when steel was selling at about half its present price."

Addresses followed by the members of the retailers' association, known as the National Federation of Retail Implement and Vehicle Dealers' Association, which had also been in convention. Other reports were listened to, and after the adoption of suitable memorials on deceased members, the moving of resolutions, as briefly outlined in the commencement of this report, the election of officers, etc., the convention adjourned sine die.

Plant of the American Refractories Co., Joliet, Illinois.

By the completion at Joliet, Ill., of a plant for the manufacture of silica fire brick, Chicago has been moved one step nearer the possible greatness of Pittsburg as an iron and steel producing center. It is the first successful attempt to produce this product in the west, and has acquired title to a large tract of land on the eastern shore of Devil's Lake, Wis., where the purest and most accessible deposits are found. The manufactured product has an extremely low alumina content, as is shown by the following analysis of the rock in its crude state, intermediate stage of manufacture and in its marketable form:

	Boulder	Solid Material.	Brick.
SiO_2	97.76	98.28	97.10
Fe_2O_3	1.02	0.77	0.93
Al_2O_3	0.78	0.57	0.93
CaO	0.06	0.04	1.58
MgO	0.05	0.03	0.11
Loss by Ign..	0.38	0.35	0.06



PLANT OF THE AMERICAN REFRACTORIES CO. VIEW FROM TRACKS OF ELGIN, JOLIET & EASTERN RAILROAD, LOOKING EAST.

the importance of the undertaking to the commercial interests of that region is second only to the successful production of coke there. Heretofore, nearly all the refractory materials for steel-making operations in the central west have come from Pennsylvania, but the discovery of a quartzite formation in Wisconsin that can be manufactured into a high-grade refractory that will stand the severe usage of open-hearth practice not only will make the west independent of Pennsylvania for this product, but threatens to change the center of operations in this industry. Large deposits of this ganister are found in the Baraboo district, and the product of the American Refractories Co. at Joliet, whose plant is the subject of this article, has, under severe tests, shown a strength and refractoriness equal to any other silica brick manufactured. This company

The plant is of steel construction throughout, is light and airy, absolutely fireproof, and has been built along lines of the most approved methods of fire brick manufacture. The main building, which combines a power house, grinding room and hot floor, is 245 x 130 feet. The yard alongside contains nine round kilns, each with a capacity of 100,000 brick, and three square kilns, each of 50,000 capacity. Beyond this is another yard containing a storage shed of over 1,000,000 capacity. The kilns are of the latest design, and are built of the highest quality of brick to insure the thorough burning of their partially baked contents. Switch tracks of the Elgin, Joliet & Eastern and the Chicago, Rock Island & Pacific railways lead into the yard, permitting the loading of cars with the least possible expense in handling. The E., J. & E. Ry. connects with all the belt lines in Chicago, and affords excellent transportation facilities.

The plant was designed to allow easy extension in either direction; and so successful has the company been in disposing of its product that plans for a second and larger unit are now being prepared. This will be located in the vacant space between the office and main buildings, while the latter will be extended in the opposite direction to provide room for the manufacture of magnesite and chrome brick, for which operation the square kilns were originally built.

The ganister is shipped from Devil's Lake in drop bottom cars, which discharge from an elevated trestle into a stock pile paralleling the grinding room. The rock is fed into a crusher made by the Good Roads Machine Co., Kennett

Square, Pa., located beneath the floor and reduced to pieces about three inches in size. From thence it is elevated into steel bins situated directly back of the grinding pans. These bins, of which there are three, are built of heavy plates and structural shapes and have a total capacity of 150 tons each. Each bin is

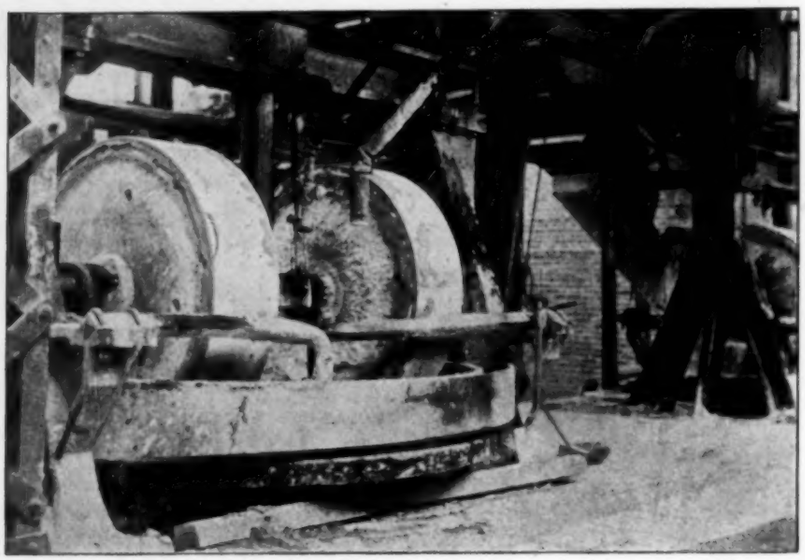


FIG. 2.—ONE OF THE GRINDING MACHINES.

provided with a measuring hopper for regulating the charges into the wet grinding pans. The latter are also of extra heavy design, and were built by the Clearfield Machine Co., Clearfield, Pa. The two rollers in each pan weigh five tons each.

The mud is shoveled from the grinding pans into self-dumping wagons, which are dragged to the molders' tables alongside the wharves. All the bricks are made by hand, thus insuring a uniform high grade product. The hot floor adjoining is built of heavy steel plates and has a capacity of 50,000 brick per day. The plates are heated by the circulation of the exhaust steam from the engines. After drying 24 hours, the bricks are burned in the kilns about eight days at a temperature of over 3,100 degrees, and are removed seven or eight days after the fires are banked.

The power plant consists of two 260-horsepower Rust boilers; one 250-horsepower Bates Corliss engine, and one 50-horsepower Bates automatic high speed engine, direct connected to a 30-kilowatt Western Electric direct-connected generator, the latter being exclusively for lighting purposes.

Reports of the proposed consolidation of the Youngstown Foundry & Machine Co. and the Mahoning Foundry & Machine Co., Youngstown, O., are declared to be without foundation.

SPARTA MUST MOVE

On Account of Mines Near It.—Operations at the Pettit.

Office of THE IRON TRADE REVIEW, Duluth, October 9.

Sparta is one of the towns that will have to be moved because of the mines near it. The Genoa mine now has a shaft, No. 2, down on the forty adjoining the town site, while the ore body and some of the workings extend under the town itself. Last spring, a new shaft known as Genoa 4 was sunk a little to the north of No. 2, and the mine is to be worked out completely through this shaft, so that the mining operations with resulting caving will be carried into the heart of Sparta. The new shaft has three compartments and is already down over 368 feet. A considerable depth of taconite was encountered in sinking No. 4 and that with other excavated material was hoisted out by way of No. 2.

Extensive preparations are going on for the work through the new shaft and a new power and boiler house have been erected, a tool house, carpenter shop, blacksmith shop, dry and dwellings have been built and a new road is being cut through. The hoist to be used was formerly at the Fayal No. 1 shaft and is an 18 x 42 inch Allis-Corliss engine with six foot drum. The boilers are of the standard 72 x 18 return tubular type and there will be three of them. Equipment for an electric lighting plant and a fire system will be installed. There is quite a quantity of water in the new shaft and two No. 10 and one No. 8 Cameron pumps are working. No. 1 and No. 3 shafts of the Genoa have been abandoned. The stock pile at No. 2 shaft has been shipped and a new tramway from the headframe is being put up for next winter's pile. Ed. Coombs is captain of the mine.

The old Sparta mine has been worked out and the lease surrendered. It was originally operated by Geo. A. St. Clair and later by Pickands, Mather & Co. Its shaft houses are now removed and all that remains are the traces of the workings and the old approach now leading down into the Malta mine. The Malta is also a Pickands, Mather &

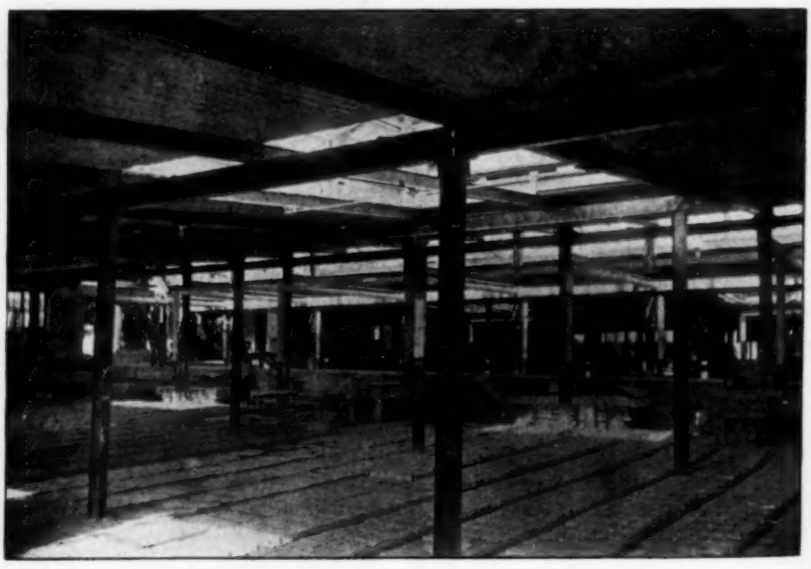


FIG. 3.—MOLDING ROOM, SHOWING HOT FLOOR FOR DRYING.

Co. property and a troublesome proposition it has been, too. The ore deposit is of a splendid Bessemer quality, but rock is so interspersed with the ore that mining could not be carried on to advantage at all. The underground

working has been practically abandoned and the work in the open pit consists of hand shoveling the ore into cars which are hauled up a grade at the bottom of the pit by a small hoist installed in the open. An inclined skip hoist runs down the side of the pit. A year ago a new shaft was started on the south forty and it is now 250 feet deep. It was driven down through rock the entire distance except for 30 feet at the top. A solid rock lining was fortunate, because of the large amount of water that is coming in. There are now two No. 10 Camerons and a small Prescott in the shaft and a duplex, tandem-compound Prescott 10-18 x 10 x 18 inches and a 6 x 8 x 10 simple Prescott are about to be installed. Capt. Nichols is in charge of the work.

The Pettit mine of the Republic Iron & Steel Co. east of Sparta has had a checkered career, and between having to deal with an excessive quantity of water and having to recover from some unfortunate mishaps in connection with the mining operations, the workings are still in a more or less haphazard condition. To take care of the water, there is installed at the bottom of the 200-foot shaft a 2,500-gallon triple-expansion Prescott pump. The mine was formerly worked by the square set system, but it caved in so that now, with the exception of one sub that is about worked out, the mining is all done from one level and the drifts are carried out in any direction that the ore may happen to lie. This way of drifting is made the more necessary because of the large quantity of rock among the ore. During the last winter about 40,000 tons of ore was stocked and that is being shipped at the present time, only about half of it being left.

The south forty of the Pettit is being drilled, and while it has not been altogether settled that this property will not be worked as an open pit, it is probable that a shaft will be sunk on it very soon. This forty adjoins that of the Hobart, where so much water has been found, but it is not believed that the new Pettit shaft will be as unfortunate. The ore here is of a splendid grade and predictions have been made that the new shaft will more than make up for the mishaps at the old shaft. The hoist at the present shaft was built by the Exeter Machine Works, of Pittston, Pa., and of the four boilers, one was built by Brownell & Co., of Dayton, O., another by the Gogebic Steam Boiler Works, of Duluth, and two by the Milwaukee Boiler Works, Milwaukee. This mine is in the district over which Supt. Jenks has charge and the mine is operated now by Capt. Cain.

The Hobart mine is developing slowly. Two shafts have been sunk, and both have been somewhat distorted as the result of the water and quicksand through which they have been sunk. The first one is in the worst shape, and both have suffered most severely near the top. Water is being pumped out of both shafts, and the second, which is to be the permanent one, can undoubtedly be almost entirely remedied. The shaft house has been built, and stands alongside of the shaft, ready to be shoved over it at the proper time. The approach for the railroad spur is being cut and has been the occasion of considerable work because of cuts and fills. The water here, it is claimed, is largely surface water and it all comes in on top of the taconite. To better drain it a drift was started from the bottom of the shaft and several raises built up through the hard pan, so that much of the water comes down that way into the bottom of the shaft. A little ore has already been taken out, and there will probably be something of a stock pile accumulated this winter, but no ore will be shipped this season.

SAN FRANCISCO'S REBUILDING.

Of the $208,000,000 insurance on property in San Francisco, destroyed by fire, $150,000,000 has been paid to policy holders. Considerable progress in rebuilding is being made. During September 1,050 building permits were issued to the valuation of $5,902,000 and real estate transfers numbered practically the same. Except for the item of rental, the cost of living in San Francisco is not increased by reason of the fire. Owing to a lack of house facilities, the population is about at a standstill. Every school building in the city is crowded to its limits with a total enrollment of 29,803, and it is estimated that with proper facilities there will be at least 15,000 more ready to enter. The labor supply continues inadequate to meet demands.

Small Loss at Mobile.—The American Supply Co., Mobile, Ala., reports that press statements of extremely heavy losses through the wholesale jobbing houses of that city during its recent disaster were greatly exaggerated, and with the exception of stocks of perishable goods, the losses were small. Hardware and supply houses had only to move their stocks into dry places, clean and oil them. In the case of the American Supply Co. 95 per cent of its stock was absolutely protected and little delay in shipments was occasioned.

SOUTH'S NEED OF LABOR.

One Manufacturer Says Ample Help Would Increase His Output One-Fourth.

Birmingham, Ala., Oct. 15.—Blast iron furnaces, steel mills, foundries and machine shops, ore and coal mines, limestone quarries and cotton fields in the southern territory are in need of labor. The heavy importation of foreign labor and the inducements being offered skilled and other labor in the north to move southward do not make any appreciable indenture in the shortage of labor that has been noted for some time.

Some of the larger industrial corporations in the south have been importing Italian laborers, in fact, they have been securing all kinds of foreigners that have been coming to the United States in late years, except the Russian Jews. Some of the companies in this section went into Mexico and brought a number of Mexicans to the state and are doing well with them. Opinion differs as to the success obtained with foreign labor. The Mexicans are proving good workingmen and in some instances the Italians are doing well, especially in the ore mines. The Slavs, Russians and others are working all right but they are giving trouble otherwise. There is a great scarcity of labor still felt.

G. H. Schuler, of the Southern Steel Co. says that at the steel rod, wire and nail mills at Ensley alone if there was an abundance of labor the output of the plant could be increased twenty per cent, at least. The Alabama Consolidated Coal & Iron Co has been placing Italians in its ore mines and good results are noted.

The negroes of the south are taking up coal mining more than ever before, their efforts in that vocation meeting with better results in earnings than around furnaces or other work. However, the negro is still considered of the shifting class and not to be depended on. The negro cannot notice that he is being ousted by degrees by the foreign element. Farmers in this state are now expecting to land some of the foreign labor in their fields. There is a great shortage of labor reported in the cotton fields.

Foundry proprietors in Madison county, Ind., have organized to operate their plants as open shops. W. J. Wooley, of the Wooley Foundry & Machine Co., Anderson, has been chosen president, and F. J. Hill, of the Hill Machine Co., vice president. In addition the Anderson Foundry & Machine Works, the Ross Supply Co., both of Anderson, and the Elwood Iron Works, of Elwood, are included.

SOME NOTES ON THE CHEMISTRY OF CAST IRON.[1]

By L. Houghton.

What follows is not intended to be an exhaustive exposition on the constitution of cast iron, but rather a resume of some points which have interested the writer from time to time.

The subject is divided for convenience under the heads of the chief constituents of cast iron.

Carbon. — This substance, whose presence in combination and alloy with iron is almost alone responsible for the range of metals from mild steel to cast iron, has naturally been the object of considerable attention at the hands of metallurgists. Much patient and careful work has been done in recent years in elucidating the problem of the mode of occurrence of carbon in steel and indeed in this respect our knowledge of steel may now be regarded as fairly complete.

To cast iron, however, on account of the complications arising from the presence of large quantities of other elements, no very considerable attention had been given until quite recently.

Now that our knowledge of steel has been brought to a state of comparative reliability, there seems no reason why the more difficult problems in connection with cast iron should not be proceeded with apace.

For example: The diagram designed by Rooseboom indicating the changes occurring in the condition of carbon during cooling from the molten state, requires amending in the case of gray castings to show the effect of the various elements in changing the position of the critical points.

There is a certain amount of information on these points disseminated through current literature, but some graphical representation of it would be a very welcome adjunct to our means of studying cast iron.

The unreliability of the color test for combined carbon in cast iron is well known, as often the whole of the combined carbon is not indicated. This is particularly the case with iron which has received heat treatment and is more obvious as the content of combined carbon increases towards white iron. Gray iron castings, normally cooled, are however, practically free from this feature, in the writer's experience.

An analysis of cast iron may indeed soon be considered incomplete when the carbon is stated in terms of graphitic and combined carbon only, and some indication will be necessary, either analytically or micrographically to show not only in what form the combined carbon is present but also to distinguish between the free carbon as graphite and as temper or annealing carbon.

The size of the grains of the graphite in cast iron has had a new importance given to it through the investigations of Professor Turner on this subject. According to Professor Turner's results, annealing carbon is that which is sufficiently small to pass the 90 sieve. This finely divided graphite is more desirable in a casting than the large flakes, as the latter develop lines of weakness in the iron.

I had the privilege of making the analysis in connection with the paper on cast iron read by Mr. H. Pilkington, M. Inst. C. E., now your president, at your last meeting.

In this work I soon found that not only was combined carbon present in more than one form, but that the graphite was present after heat treatment in a very fine condition, and much of the benefit derived from the method of heat treatment there described is, in my opinion, due to this finely divided state of the graphite.

Processes for the production of this finely graphitic structure, whether of heat treatment or otherwise, will probably play an important part in the future history of cast iron.

In judging a pig iron for foundry purposes, however, the maxim is still true that the greater the ratio of the total amount of graphite to the total amount of combined carbon, the more valuable the iron.

Silicon.

From a purely chemical point of view, silicon is so closely allied to carbon that it would not be surprising to find a close relationship between them in the manner of their occurrence in cast iron. Indeed graphitic silicon has long been sought for, and may ultimately be proved to exist, while in combined condition silicon also very closely resembles carbon.

The subject is a somewhat difficult one and very little authoritative work has been done or at least announced, so far as the writer knows, although it may be that some at least of our troubles may find explanation on these lines.

Mr. J. E. Stead writing in Prof. Sexton's Metallurgy of Iron and Steel under the heading "Heat Treatment of Gray Iron," notices two varieties of silicon in considering gray iron, high in silicon, chilled from the liquid state. One kind gelatinizes on solution in hydrochloric acid; the other does not.

In examining samples of over gray iron, mentioned by Mr. Pilkington in the paper just referred to, the writer has found indications of a similar nature in regard to the silicon. It is quite possible that the properties of such iron may be due to the condition of the silicon or are more marked from this cause. This element is not uniformly high however, as some analyses in Table I will show.

The conditions under which this iron is produced are very interesting. The furnace is always working very hot and the iron being run slowly down to the beds, apparently becomes chilled while fluid and when cold

Table I.

	I. Per cent.	II. Per cent.	III. Per cent.	IV. Per cent.
Total Carbon	3.75	3.62	3.53	3.62
Graphitic Carbon	2.85	2.90	2.95	3.37
Combined Carbon	0.90	0.72	0.58	0.25
Silicon Carbon	1.82	1.87	2.94	4.01
Sulphur Carbon	0.007	0.008	0.007	0.022

Table II.

Silicon added.	Size of Ladle.	Transverse strength.	Deflection.	Per Cent Alteration in strength.	Per Cent Alteration in Deflec.
¼ lb.	Hand ladle	2265 lbs.	.120		
none		2150	.112		
	Gain	110	.008	5.10	7.14
¼ lb.		2330	.143		
none	Hand ladle	1893	.110		
		437	.033	23.80	30.00
1 lb.		2370	.139		
none	200-lb. ladle	2050	.118		
		320	.021	15.60	17.80
1 lb.		2178	.128		
none	200-lb. ladle	2000	.119		
		178	.009	8.90	7.50

[1]Paper read before the British Foundrymen's Association at the Middlefield (August, 1906) meeting.

presents a very wild fracture. Unfortunately, considerable variation is allowable in furnace conditions, for the production of this metal, but there are certain fixed conditions, the main one of which is that the burden is always light, carrying an excess of coke.

TABLE III.

Character of Slag.	Pure Silicon added.	Quantity of Metal used.	Transverse strength.	Deflection	Per cent Alteration in strength.	Per cent Alteration in deflec.
White	¼ lb.	50 lbs.	3160 lbs.	.310		
	none		3350	.333		
			loss 190	.023	5.7	7.0
White	½ lb.	100 lbs.	3000	.320		
	none		3300	.350		
			loss 300	.030	9.1	8.6
Dark	¾ lb.	75 lbs.	3550	.325		
	none		3330	.315		
			gain 220	.010	6.6	3.1
Dark	½ lb.	100 lbs.	3430	.330		
	none		3100	.300		
			gain 330	.030	10.60	10.0

NOTE.—The test bars cover 36 x 2 x 1 inches.

With this fixed condition there is a certain amount of variation possible in the product of the furnace according to other variable conditions. If the slag be very limey (say 43.0 per cent to 45.0 per cent lime) then if the metal as tapped contains a normal amount of silicon (say 3.0 per cent to 3.5 per cent) the pig iron will usually have a good No. 1 or No. 2 fracture. With the silicon under 3.0 per cent the fracture will be wild and scattered and the more so, the lower the silicon contents. On the other hand, with a slag comparatively low in lime (say 35 to 40 per cent lime) and a similar burden as regards fuel, two products are again possible.

If the silicon be over 4.0 per cent the iron will be glazed and if under 4.0 per cent of good fracture. Under such conditions low silicon iron is not made.

The question thus resolves itself, more or less round the silicon content and it would seem that with rich limey slags there may under certain practical furnace conditions, not be sufficient silicon reduced to ensure all the carbon (or a sufficiently large proportion of it), to remain as graphite. The iron also carries a larger total carbon than is usual with the brand and there is consequently a greater tendency to form combined carbon.

It may also be that a portion of what silicon is present is rendered incapable of acting upon the carbon owing to the chilling of the metal in the liquid state and thus increasing the effect.

This and the microscopic examination are the lines on which probably further information can be gathered on this subject.

That there is something unusual in the condition of the elements in such iron is shown by the fact that remelting in a cupola does not remove the evil properties of the iron and in all probability it will be necessary to remelt in air furnaces to a higher temperature than the original temperature at which the metal was tapped.

Mr. Pilkington, who is well known, as an expert in blast furnace matters, has taken a keen interest in the matter for years, has made the subject his own, and will no doubt ultimately see the most interesting problem satisfactorily solved.

In a paper by Mr. A. E. Outerbridge presented to the American Foundrymen's Association the addition of ferro-silicon to the ladle is advocated and very considerable gains in transverse strength and deflection are shown as a few illustrations extracted from that paper and given in Table II will show.

Mr. Outerbridge however, points out that the use of ferro-silicon in the ladle may be better than the addition of extra silicon to the mixture on the cupola stage, as the silicon added as ferro-silicon readily abstracts any oxygen from the molten iron which may have been taken up from the blast in the cupola. Such oxygen, it is well known, has a very detrimental effect on the iron and is the cause often of trouble which is attributed to other causes.

The writer has made some experiments with ferro-silicon, which while not at all exhaustive may be interesting in this connection.

In the first two instances quoted in Table III the cupola was running on a light colored slag, while the last two instances are from a cupola on a dark slag.

The results are interesting rather as a comment upon the statement by Mr. Outerbridge that the good results may be due to the extraction of oxygen from the metal, than as decisive for or against such additions.

In the first cases, the iron being melted in a hot cupola on a light colored slag, indicating a sufficiency of coke and limestone for fluxing, the conditions are such as to reduce the tendency to absorb oxygen to the minimum, whilst in the second case the conditions are absent; in the former case the addition of ferro-silicon reduces the strength and deflection, in the latter increases them and it would seem as if there were some connection between the two.

It may be that since American iron is lower in silicon than English brands, and that higher melting ratios are more common there than here, combined with stronger blast, some considerable absorption of oxygen is a constant occurrence in their practice. Even if this be so, it is a question whether it would not be more economical to work with slightly lower melting ratios, with more flux on the charge, than to incur the expense for ferro-silicon to more than cover any economy obtained.

TABLE IV.

	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Manganese	30.00	40.0	50.0	60.0	70.0	80.0
Carbon	5.4	5.6	5.8	6.2	6.5	6.8
Sulphur	0.005	0.005	0.005	trace	trace	trace

Manganese and Sulphur.

Manganese and sulphur are so connected together in the relation to cast iron, that they may for our purpose be considered together.

TABLE V.

	Original Iron.	Melted with 16 per cent Spiegel to give 1.80 per cent in mixture.	Melted with 80 per cent Ferro Mn to give 1.80 per cent in mixture.	Original Iron.	Melted with 80 per cent Ferro Mn to give 9.0 per cent Mn in mixture.
	White.	Gray.	Gray.	White.	Gray.
Manganese	0.491	1.22	1.12	0.22	6.87
Sulphur	0.170	0.057	0.065	2.50	0.056

The presence of manganese in quantity in iron, has two principal effects, namely to increase the power of the metal to absorb carbon and to decrease the amount of sulphur held by the iron.

While connected as a chemist with the manufacture of ferro-manganese and spiegels, the writer observed that in every case sulphur was practically absent in these metals.

The typical analyses given in Table IV will indicate both the properties referred to.

The usual effect of manganese is to harden castings and to increase the shrinkage, but these effects can generally be neutralized by judicious adjustment of the silicon contents, whilst its power to make the metal more fluid and thus reduce the number and size of blowholes is of great use.

Sulphur, as is well known, tends to

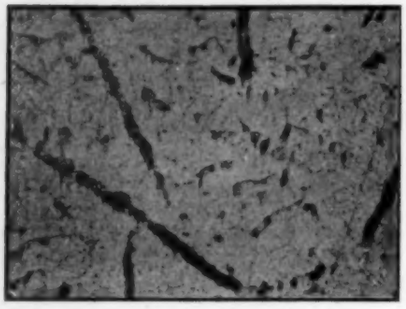


FIG. 1.—DERBYSHIRE (SHEEPBRIDGE) NO. 1, UNETCHED. COARSE GRAPHITE IS SEEN. THE PHOSPHIDE EUTECTIC STANDS IN RELIEF.

cause the carbon to assume the combined form and thus produce hard and brittle castings; it is now acknowledged to be present in cast iron as manganese sulphide if sufficient manganese is present to satisfy the whole of the sulphur; if not the balance is there as sulphide of iron.

The sulphide of manganese being very fluid has a tendency to float to the top more or less during cooling. As this occurs on a large scale it is quite possible to use manganese in the form of ferro-manganese or spiegel, as a softener by removing the sulphur from the iron and thus at the same time removing the effect of the sulphur on the condition of the carbon. This is only possible, however, in the case of very common iron.

Some very interesting experiments showing the effect of the addition of ferro-manganese to common iron, are

TABLE VI.

	As tapped.	After 1 hour.	As tapped.	After ¼ hr.
Sulphur	0.070	0.038	0.060	0.03
Manganese	1.00	0.80	1.20	1.00

described by Mr. T. E. Holgate, A. R. S. M. of Darwen, in a paper on this subject, read before the Staffordshire Iron and Steel Inst. in 1892 and Table V is compiled from figures given in that paper.

Even without such external additions, the presence of very normal quantities of manganese (say 1.00 per cent) will insure the expulsion of some of the sulphur under favorable circumstances, and more advantage might be taken of the fact than is the practice today, especially where the foundry is worked in connection with a blast furnace plant and direct metal may be used.

Considerable quantities of sulphur might be eliminated by running the metal first of all to a receiver or mixer of suitable size and heated in a similar manner to that adopted in steel works practice.

The results obtained at Cargo

TABLE VII.

	I.			II.		III.		IV.	
	Pig Iron.	Large Button. Mottled.	Soft Crystals ex-Button.	Small Shot. White.	Pig Iron.	Small Shot. White.	Pig Iron.	Small Button. Gray.	Pig Iron.	Small Button. Gray.
Silicon	1.026	0.513								
Sulphur	0.150	0.055								
Manganese	0.800	0.795								
Phosphorus	1.460	3.960	2.76	4.88	1.44	5.73	1.35	2.88	1.42	2.032

Fleet and published by Mr. G. A. Wilson in a paper on the Talbot process[1] are very interesting in this respect.

The steel furnaces at this plant were ready before the mixer was finished and the metal was taken direct from the blast furnaces to the steel furnace.

The sulphur contents in the iron before and after the mixer was used compare as follows:

Prior to use of mixer, sulphur 0.10 to 0.15 per cent.

After use of mixer, sulphur 0.049 per cent, thus showing a very considerable reduction.

Even in ordinary cases where metal has had to be held for a considerable time before casting, considerable reductions have taken place.

The two instances given in Table VI, which have come under my observation, and in which the metal had to be held for about one hour after tapping illustrate the same thing.

If the metal had passed through a mixer probably better results might have been obtained.

Phosphorus.

Phosphorus, in whatever quantity and form it is charged into the blast furnace, is found entirely in the pig iron, and indeed ferro-phosphorus up to 20 per cent phosphorus has been made in the blast furnace in this country (Great Britain) to the writer's knowledge. It is present in cast iron partly as phosphide of iron and partly in solid solution in the iron.

The term solid solution is not very easy to understand to those who are not familiar with the work which has been done upon steel with the aid of the microscope, but an authoritative explanation of these terms may be found elsewhere, notably in Mr. Stead's paper on iron and phosphorus (I. & S. Inst. 1900) and we need not explain here.

The phosphide can be readily detected on an etched specimen of the polished iron, with a little practice; or without etching, by what is termed heat tinting. In this process the specimen is slowly heated and the succession of tints assumed by the constituents noted.

In this way when cementite has assumed a red color, phosphide of iron has a pale yellow tint and on continuing, the phosphide at one period becomes salmon colored. This salmon tint is distinctive of phosphide of iron.

The accompanying three micrographs of Sheepbridge foundry iron published in a paper on the micro-structure of cast

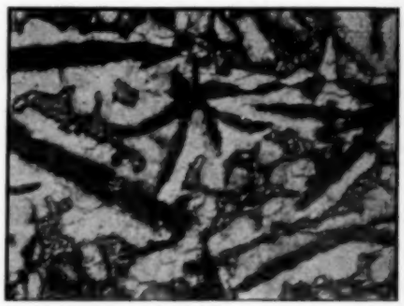


FIG. 2. — DERBYSHIRE (SHEEPBRIDGE) NO. 1 ETCHED WITH PICRIC ACID, SHOWS GRAPHITE, FERRITE AND PHOSPHIDE EUTECTIC.

iron by Mr. O. F. Hudson, A. R. C. S. (Staff. I. & S. Inst. 1905) show the presence of the eutectic or mother liquor containing the phosphorus quite clearly and are reproduced by the permission of Mr. O. F. Hudson.

Phosphide of iron is very fluid and on this account helps very materially in lowering the melting point of cast iron, as it melts considerably before the bulk of the iron. In virtue of this property globules of metal are occasionally found in iron containing much more phosphorus than the rest of the metal. Such accumulations of phosphorus have been noticed by Dr. Moldenke in America and by Mr. Stead also.

Some months ago this matter was brought to my notice by Mr. Mun-

[1]West of Scotland I. & S. Institute.

nock who had found buttons containing very considerable percentage of phosphorus, occurring in cast iron.

For some time I was unable to obtain any specimens containing over two per cent phosphorus, but during the last few weeks I have been particularly fortunate in finding several very interesting buttons in pig iron. All my specimens are from pig iron;

FIG. 3.—DERBYSHIRE (SHEEPSBRIDGE) No. 3, ETCHED WITH PICRIC ACID, SHOWS GRAPHITE, FERRITE AND PHOSPHIDE EUTECTIC.

none of them were very large, some indeed quite small. The analyses are given in Table VII, so far as I have had time and material.

Button No. 1 was found embedded in a sample of pig iron, whose fracture perhaps merits description.

When the pig was broken, the inside was found quite rusty and dark colored, the only bright metallic portion being a thin layer round the exterior. The iron had been watered while still very hot and a crack had been produced in one side, through which apparently water had entered, cracking the interior of the pig, leaving a shell of metal only around the outside. In the center of the pig was the button firmly embedded like a fossil and not occurring as in other cases in blowholes or near the surface.

A microscopic examination of these buttons would no doubt yield some very interesting results, and it is to be hoped that Mr. Stead will deal with this side of the question in taking the matter up.

At present microscopic outfits are not recognized institutions in most plants of this country, but at the present rate of progress in this branch of the study of cast iron the day will not be far distant, I think, when they will be the rule instead of the exception.

When one considers the matter closely, the microscopic examination of cast iron is merely a modification of grading by fracture.

The only difference being that the power of the human eye, which has its limitations, is reinforced so that the fracture may be examined as closely and minutely as possible.

There is no doubt that in many instances in which doubt still remains, in spite of close analytical study, the microscope would be of great service, but before such equipments can be of practical use, a considerable amount of patient routine and trial work will be necessary, so that the operator may know and have confidence in his apparatus and results. It is therefore folly to wait until results are actually required, before commencing this work.

OLD RANGE ACTIVITY.

Marquette, Mich., Oct. 13.—In his annual report for the period ending Sept. 30, last, John T. Quine, mine inspector for Marquette county, states that the year has been the most prosperous ever known to the mining industry of the range. More men have been employed and more mines have been in commission than for a number of years past. During the period of twelve months, operations have been resumed at the Stegmiller at Princeton, the Empire at Palmer, the West Republic at Republic, the American at Clarksburg, the Champion at Beacon, the Prince of Wales at Negaunee and the North Jackson at Negaunee, and preparations are under way for a resumption at the Smith mine at Princeton and the Michigan near Ishpeming, the latter a gold proposition. Much exploratory work is in progress, and at the present time twenty or more diamond drills are in commission within the limits of the county.

At the close of the year there were in operation a total of thirty-one mines, in addition to one quarry, and in the aggregate 5,840 men were employed.

Mine Inspector John Wordon of Iron county, Menominee range, reports a total of twenty-six mines in his jurisdiction, employing at the close of the fiscal year ended Sept. 30 an aggregate of 1,966 men. Fifteen fatal accidents occurred during the year, all but one underground. For every man killed there were produced 128,520 tons of ore, the total production for the twelve months having been 1,920,781 tons, which in round numbers was an increase of 500,000 tons compared with the preceding fiscal year. During the year now entered upon a number of new producers will be added to or restored to the list, among them the Kimball, Hollister, Fairbanks and Armenia, in the Crystal Falls district, together with several properties in the Iron River-Stambaugh field, and it is expected the output will exceed 2,500,000 tons, much the largest in the history of the county.

ORGANIZATION AND PLANS OF THE BRIDGE AND STRUCTURAL SOCIETY.

The Bridge and Structural Society, with headquarters at 1355 Old Colony building, Chicago, was promoted in Chicago nearly a year ago for the general betterment of the bridge and structural business. Membership in it is limited strictly to concerns engaged either in the fabrication of steel shapes or the erection of structures from that material. It is an association national in scope, with a broad platform and a laudable ambition. Already it includes in its membership many of the leading plants in the country engaged in this line of work. For some time, a great many evils have been creeping into the structural business growing out of the keen competition for contracts. The most flagrant of these is the wide variation in prices, including both abnormal charges and profitless cutting; shoddy work, substitution and other practices detrimental to the standards of the profession and dangerous to public safety. It is the intention of the society, so far as it is able, to discourage and eliminate these practices; and by bringing manufacturers into closer personal acquaintance, endeavor to create a better understanding of the different needs of the business in the various localities, and to provide the means of legitimate and beneficial co-operation and competition. The society, furthermore, proposes to recommend and promote the building of bridges and structures better in quality and to uniform specifications and designs, and as far as may be practicable, to discuss the best and cheapest means of manufacturing and selling to facilitate the same; to promote good fellowship among its members; and, from time to time, to acquaint the manufacturers and other parties concerned with the opinion of the society on various points of interest.

Among its recommendations is one that manufacturers should not sell indiscriminately to contractors who have not had experience in structural operations, or who are not equipped with the proper appliances to erect commendable and safe work. It also requests its members and others not to sell truss or girder bridges to county or township officials, except complete in place, for the reason that their usual unworkmanlike methods of erection injures the reputation of the shop furnishing the material for the work. Various papers relating to shop and erection costs will be invited from its members and from other competent authorities on these subjects, which will be discussed at the different meetings to the end that a more uniform and accurate method of arriving at these costs may be obtained. The association also hopes by concerted action, and with

an organization of proper proportions, to secure concessions in prices of raw material and more prompt deliveries from the mills.

According to the by-laws, the officers of the society consist of a president, six vice presidents, secretary and treasurer. The president and vice presidents constitute the board of directors. Local committees are appointed for the purpose of taking up and despatching subjects peculiar to their locality. At present there are only three of these committees, known as the "Eastern", "Central", and "Western"; but as the membership grows, it is proposed to subdivide these subsidiary organizations into more compact bodies. All the members in each section become, by virtue of their membership, a part of the local committee of that district. The chairman of each committee constitutes one of the six vice presidents required by the by-laws, but should there not be enough local committees additional vice presidents "at large" may be elected.

The national president is Guy Webster, of the York Bridge Co., York, Pa.; treasurer, Eugene Runyan, of the Central States Bridge Co., Indianapolis, Ind., and secretary, J. A. Mather, formerly with the American Bridge Co.

The headquarters of the local committees, and their respective chairmen, are as follows:

Eastern: New York. L. H. Brumbaugh, Berlin Construction Co., New York City.

Central: Columbus, Ohio. Chairman, W. C. Laiblin, Canton Bridge Co., Canton, Ohio.

Western: Chicago. Chairman, T. L. Blackburn, Decatur Bridge Co., Decatur, Ill.

The three vice presidents at large are: A. Y. Bayne, A. Y. Bayne Co., Minneapolis, Minn.; George Stupp, Stupp Bros. Bridge & Iron Co., St. Louis, Mo.; W. H. Converse, Chattanooga Bridge Co., Chattanooga, Tenn.

The society meets on the third Tuesday in January, April, July and October. The following is a partial list of the members:

E. A. Curtis, Attica Bridge Co., Attica, Ind.
A. Y. Bayne, A. Y. Bayne & Co., Minneapolis, Minn.
J. E. Miller, Bellefontaine Bridge Co., Bellefontaine, O.
L. H. Brumbaugh, Berlin Construction Co., 220 Broadway, New York.
Wm. R. Brown, Brown-Ketcham Iron Works, Indianapolis, Ind.
W. C. Laiblin, Canton Bridge Co., Canton, O.
Eugene Runyan, Central States Bridge Co., Indianapolis, Ind.
R. L. Owens, Champion Bridge Co., Wilmington, O.
Geo. E. Wilson, Clinton Bridge & Iron Works, Clinton, Iowa.
W. H. Converse, Converse Bridge Co., Chattanooga, Tenn.
H. E. Hughes, Continental Bridge Co., Chicago, Ill.
T. L. Blackburn, Decatur Bridge Co., Lincoln, Ill.
W. H. Jackson, Des Moines Bridge & Iron Works, Des Moines, Iowa.
Frank Brumbaugh, Elkhart Bridge & Iron Co., Elkhart, Ind.
E. A. Landon, Groton Bridge Co., Groton, N. Y.
R. W. Huston, Huston & Cleveland, Columbus, Ohio.
T. A. Chapin, Illinois Steel Bridge Co., Jacksonville, Ill.
J. H. Baker, Illinois Bridge & Iron Co., Sullivan, Ill.
R. E. Adams, Indianapolis Bridge & Iron Works, Indianapolis, Ind.
A. A. Dresser, Jenks & Dresser, Port Huron, Mich.
R. C. Morrison, Joliet Bridge & Iron Co., Joliet, Ill.
Hugo Lucas, A. Lucas & Sons, Peoria, Ill.
F. W. Moore, Milwaukee Bridge Co., Milwaukee, Wis.
G. M. Gillette, Minnesota Steel & Machinery Co., Minneapolis, Minn.
J. T. Garrett, Missouri Bridge & Iron Co., St. Louis, Mo.
A. J. Schilling, Mo. Valley Bridge & Iron Co., Leavenworth, Kansas.
Arthur J. Dyer, Nashville Bridge Co., Nashville, Tenn.
E. S. McNaul, Owego Bridge Co., West End Trust Bldg., Philadelphia, Pa.
Jesse D. Smith, Pan American Bridge Co., New Castle, Ind.
Geo. E. Zimmerly, Paris Bridge & Supply Co., Paris, Ill.
A. L. Deniston, Rochester Bridge Co., Rochester, Ind.
Thacher A. Parker, Thacher A. Parker Co., Terre Haute, Ind.
W. S. Huntington, St. Paul Foundry Co., St. Paul, Minn.
Robert Drake, Standard Bridge Co., Omaha, Nebraska.
C. R. Speers, A. E. Shorthill Co., Marshalltown, Iowa.
George Stupp, Stupp Bros. Bridge & Iron Co., St. Louis, Mo.
J. A. Cole, Topeka Bridge & Iron Co., Topeka, Kansas.
Jas. R. Watt, United Construction Co., Albany, N. Y.
J. L. Riddle, Vincennes Bridge Co., Vincennes, Ind.
J. W. Frain, Winamac Bridge Co., Winamac, Ind.
B. L. Worden, Worden-Allen Co., Milwaukee, Wis.
Geo. McGormly, Wynkoop & McGormly, Toledo, Ohio.
Guy Webster, York Bridge Co., York, Pa.

Lathe Business Sold.—The Patterson Tool & Supply Co., Dayton, O., announces the sale of the 13½-inch lathe business, which it has been conducting under the name of the Miami Valley Machine Tool Co., to Dayton interests already established in manufacturing, which will now assume the name of the Miami Valley Machine Tool Co. Their plant will be given additional equipment by the Patterson company, enabling them to place their lathes on the market promptly. Exclusive sale in Ohio and Indiana has been given to the Patterson Tool & Supply Co., the Indiana business being looked after by A. G. Schonacker, 508 E. Twenty-third street, Indianapolis.

The Grand Trunk railway has given the Locomotive & Machine Co., of Montreal, an order for 55 new Richmond compound consolidated engines, to be delivered as soon as turned out, and all to be in use before the end of the year. They will be 40,000 pounds heavier than the compound freight engines which have been the standard on the Grand Trunk in the past. The Richmond compound was decided on as the result of practical tests proving that engines of this class effect a saving of from 20 to 25 per cent. in cost of fuel.

CONVERTER STEEL CASTING PRACTICE.—I.

By Arthur Simonson.

It will be the author's object in this and succeeding articles to give a general idea of the science and art of making steel castings in a foundry equipped with the Tropenas system of steel making. Some of the ground has been more or less fully covered in previous articles by the writer, but it is now proposed to treat consecutively of the scope of the process, of the equipment necessary and the methods of procedure. The present article will discuss briefly the range of usefulness of the process, and describe the mechanical plant in more or less detail.

It is a mistake to think that the company operating a small converter plant

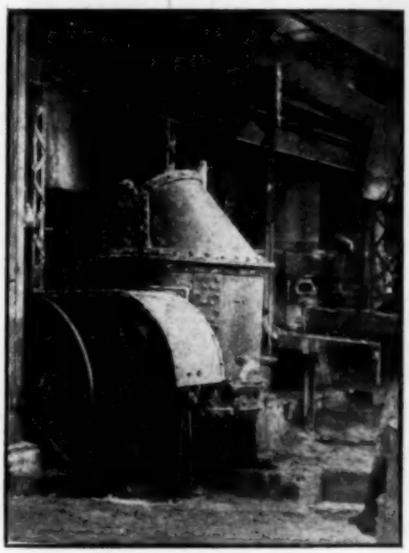


Fig. 1.—Converter and Tilting Mechanism.

can successfully compete in all lines of the castings business. There are undoubtedly branches where it is beaten by the open-hearth and the malleable iron foundry. The writer is not exploiting the Tropenas process and has no bias in favor of it beyond what a twelve years' operation of it has given, and he is entirely cognizant of its limitations. There are few things so light that they cannot be cast from the excessively hot steel made in the small converter, but for these tiny pieces, gray iron, malleable iron or brass are generally strong enough. On the other hand, for the very large pieces, say over eight tons in weight, the open-hearth is probably cheaper, in America at any rate, though in England a plant operating five converters is successful in competition with the open-hearth and turning out over six hundred tons per month of miscellaneous castings of all analyses, and varying from

less than a pound up to ten tons.

The field of the small converter is ideally in the small and medium castings, and those calling for a specially high-grade material. It is an undisputed fact that a well handled converter of the Tropenas type produces a superior qual-

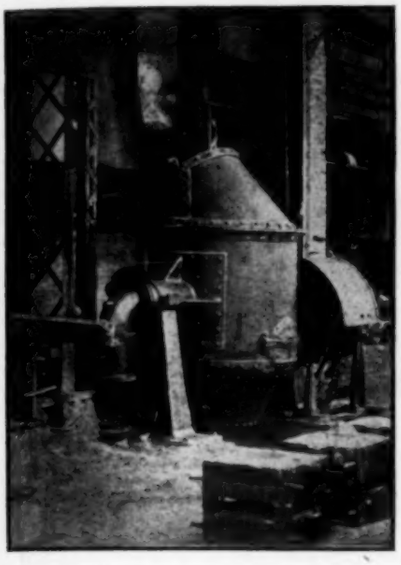


FIG. 2.—CONVERTER, SHOWING BLAST PIPE.

ity of steel, sounder, closer grained and stronger. In automobile work, motor boats, in the construction of coal and ice wagons, for gears, valves and levers, turbine work, gas engines and general machine work, the small converter is particularly *au fait*.

The realization of what can be done in the way of making light and intricate castings has led to the elaboration of engine and machine details in a remarkable way. A designer has no longer to take into consideration the possibility of not being able to get the castings he requires in steel. The small converter has made it possible to develop tremendous power in engines occupying small space, and as proposition after proposition is put before the founder and solved, he is beginning now to realize the possibilities of the process. The increasing number of plants being erected and the success with which they are meeting testifies to the realization of the claims made for it since its inception.

It is worthy of notice that the open-hearth people are now beginning to realize the usefulness of a small converter as an annex to their large furnace, in this way being able to take care of absolutely any business that comes along, and relieve the big furnace of the tedious costly necessity of making the small castings. There is today also at least one case of a malleable iron foundry installing a Tropenas converter. It seems probable that the time is near at hand when every open-hearth furnace operating on castings will have as an adjunct one or more converters. The idea would then be to make all the small castings with the converter and just enough of the larger ones to fill in up to capacity. In dull times the entire output might be economically made with the converter.

We will now describe in detail a plant consisting of one two-ton converter and having a capacity of about forty tons of castings per week. It consists of converter, converter blower and motor, "pulpit," or operating station, cupola, cupola platform and elevator, cupola blower and motor, ladles and ladle heating plant, sand grinder and mixer.

An analytical laboratory is also indispensable, and this has been made the subject of a special article. As for the foundry equipment, that is, cranes, flasks and miscellaneous rigging, they are the same for all foundries, no matter what process is used, but it may be well to make a few general remarks on this subject in passing.

Electric traveling cranes are now almost exclusively used with wall or jib cranes as accessories. All foundry buildings should be steel construction with ample lighting facilities. Up-to-date plants are provided with heating and ventilating systems so that in summer air from

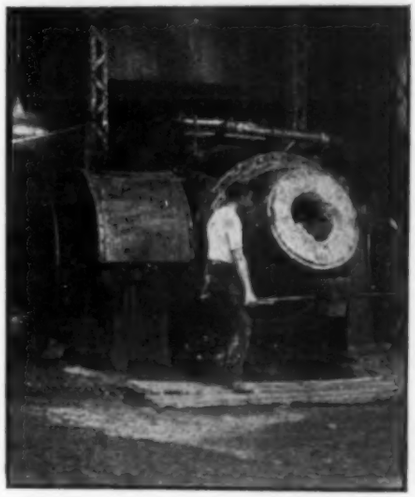


FIG. 3.—CONVERTER TILTED.

outside can be distributed through the building, and in winter can be passed through steam coils. The heating of foundries is a very important matter as if the sand is allowed to freeze it will cause endless trouble, particularly if green sand castings are made. The artificial lighting of a foundry for night work is a problem requiring considerable attention. The atmosphere in a foundry is often smoky and always very dusty, and it requires a very good distribution of powerful lights to enable the men to work when necessary, as well at night as in the daytime. The ovens for drying molds should be as large as possible, and their trucks designed of such a type that the heating of axles and bearings will not affect their running qualities. Flasks, chains and general tackle should be as heavy as is convenient to handle. The less risk taken the better, and the

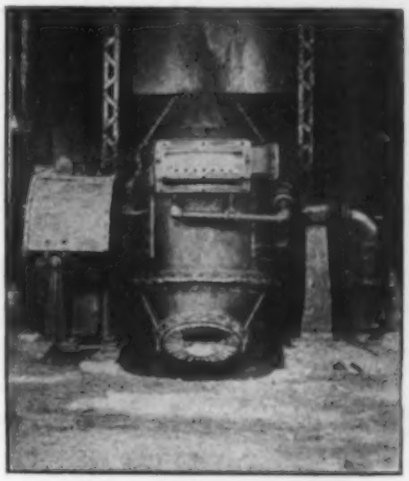


FIG. 4.—CONVERTER DUMPED.

foundry business has enough of them under the best circumstances.

The writer holds the opinion that any amount of money judiciously expended on special tackle and rigging in the foundry pays a good dividend in safety, speed and economy.

Converter.

The converter is of two tons capacity, that is to say, it is capable of turning out at each operation approximately two tons of steel. In this article it will be considered as a machine only; its metallurgical side will be dealt with in the next paper. The illustrations Figs. 1, 2, 3, and 4 will give a good idea of the general appearance of the converter. Fig. 1 shows the side that is equipped with means for tilting, Fig. 2 shows the blast pipe connected to the hollow trunnion, Fig. 3 shows the converter in the pouring position with a bull ladle in position to receive the metal, and Fig. 4 shows the converter dumped to empty the slag after the metal has all been poured out.

The shell of the converter is five feet in diameter and is made of five-eighths inch steel plates, perforated with three-quarter inch holes spaced eight inches center to center to allow the steam to escape when drying the lining. The amount of floor space occupied by the converter is about sixteen feet square and the head room required is about eighteen to twenty feet to enable the whole of the flame which comes out of

the mouth, and which constitutes the means for judging the condition of the steel, to be seen at all times.

The converter is supported on steel trunnions, one of which is hollow and forms a duct for the air, connecting with the blast box at the back of the converter. This enables the air to be kept on continuously while the position of the con-

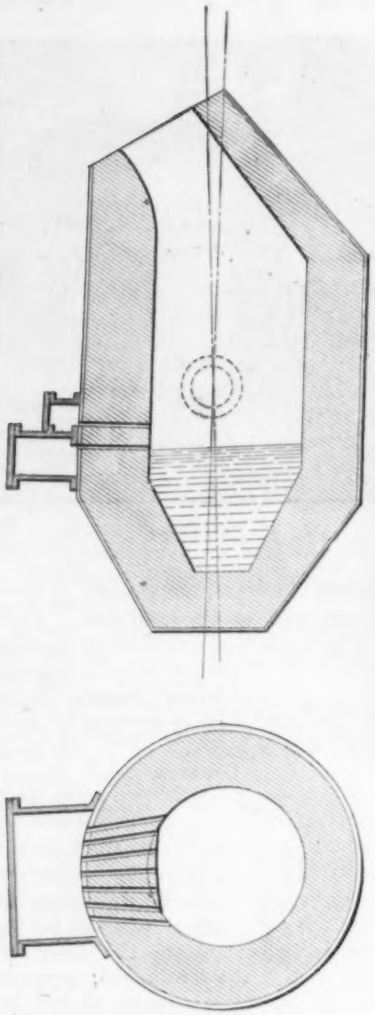


FIG. 5.—CONVERTER; HORIZONTAL AND VERTICAL SECTIONS.

verter is being charged. The blast box is double, and air can be admitted to either part separately, or in varying proportions. This is partly seen in Fig. 5, which is a section of the converter both horizontal and vertical, showing the arrangement of the tuyeres, the level of the bath and the approximate position of the vessel while the blow is being made. The other trunnion is extended and carries a worm wheel which through suitable gearing is connected to a four-horsepower motor. A hand wheel is also provided for making small movements of the vessel as required from time to time. The electric motor is the common means adopted for tilting the converter, although any means may be employed, and plants are in operation in various places running with compressed air, steam and hydraulic power. This is a mere detail and depends on circumstances. The converter is firmly bolted to pedestals, which are sufficiently high to allow the converter to make a complete revolution if necessary. This is advisable for facility in emptying the converter, and also to enable the whole of the metal to be poured out before the vessel is too low for the men to hold the ladles.

The covers of the blast boxes are fastened on by means of keys, for quick removal, to clean out a tuyere or to set the converter at the commencement of a blow. The upper box is fitted with a pipe having an independent valve so that it may be shut off entirely if desired, or

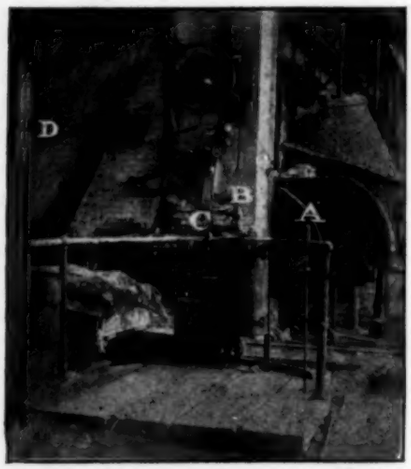


FIG. 6.—OPERATOR'S PULPIT.

any required amount of blast admitted according to the conditions that arise as the blow proceeds. The lining of the converter will be dealt with in the next number.

Converter Blower and Motor.

The blower is of the positive pressure type, and must be capable of maintaining a constant pressure up to four pounds per square inch through the area of both sets of tuyeres, which consist of seven in the lower row, one and three-eighths inches in diameter, and seven in the upper row about one and a half by five-eighths inches. The No. 3½ Root blower, water jacketed, running at about four hundred revolutions per minute, is commonly used and is satisfactory. Blast may be supplied by blowing engine, but is not so satisfactory, as the pulsations of the engine, unless absorbed by a very large receiver, are manifest in the flame and interfere with the observation of the reactions. A rotary blower is best on this account as it gives a practically constant stream of air, and makes the flame perfectly steady at least as far as outside influences are concerned. The blower should be direct connected to a motor of about seventy-five horsepower; no less is advisable, as it is better to have a little power in re-

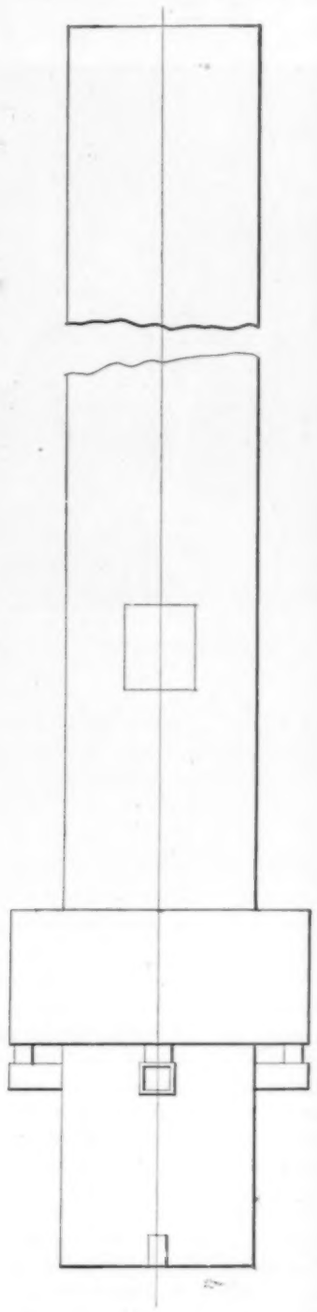


FIG. 7.—CUPOLA FOR TROPENAS CONVERTER.

serve and not run the risk of the circuit breaker flying out all the time, for when this happens it always seems to happen at a critical time in the blow and may lead to clogging of the tuyeres, loss of time and possibly disaster to the blow. The blower should be placed near to the converter, but not too near as a fair length of the twelve-inch air main serves as a reservoir and gives elasticity to the

blast, but elbows in the pipe should always be avoided.

Operating or Controlling Station.

This is the place where the operator stands to watch the progress of the blow, and to tilt the converters according to the different requirements of charging, pouring, etc. It is better to place this at one side of the vessel, about 20 feet away if

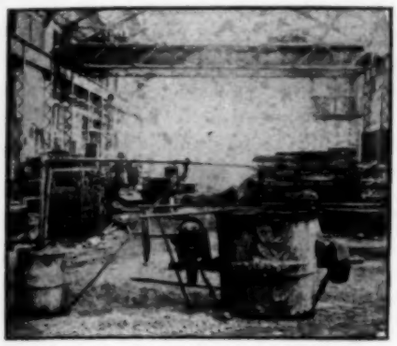


FIG. 8.—LADLE HEATING DEVICE.

possible, so that the heat will not inconvenience the operator and so that he may see the whole of the flame. It is not advisable to place the "pulpit" across the building as in this case the flame is foreshortened, and it is not possible to see the smoke, sparks, etc., so clearly. The "pulpit" contains the controller for the tilting motor, the lever of the by-pass valve to regulate the pressure of air going into the converter, a signal whistle to the blower room to signal to the engineer when to start and stop the blower, and a mercury pressure gauge. The engineer on receiving the signal of two short blasts, starts the blower at full speed and maintains it at this speed all through the blow. Variations of pressure are then obtained by the operator opening or closing the by-pass and allowing more or less air to escape through a pipe leading to the outside. The blast gauge, reading in pounds, is attached to the blast main between the blower and the by-pass. Fig. 6 gives a view of the "pulpit", and A is the lever of the by-pass valve, B is the controller of the tilting motor, C is the whistle and D is the mercury gauge.

Cupola.

There has been a great deal of discussion as to the best type of cupola for the Tropenas converter. It is largely a matter of opinion. The fact is that it is needed to melt about five tons per hour of a charge consisting oftentimes of as much as fifty per cent of steel scrap, to melt it hot, and to be capable of running very long heats, sometimes as long as eight or nine hours. Any cupola that will meet these conditions is suitable. It must be remembered that in melting low phosphorus stock, such as is used in steel making, a hot melting cupola is necessary, and facilities must be provided for taking care of a large quantity of slag, as considerable flux is used to keep the sulphur as low as possible. Discussion has taken place as to the desirability of having a cupola large enough to melt the total charge for one blow at one tap, or getting it at two taps. After long experience the writer has come to the conclusion that a somewhat special cupola is the best, and this after using almost every kind that could be mentioned. The writer's idea of a suitable cupola is one built on the lines of a blast furnace, with a bustle pipe and pendant tuyeres such as is illustrated in Fig. 7. The bustle pipe or blast box must be ample in size in order to maintain equal pressure at all of the six tuyeres. The advantage of this type of cupola is that the tuyeres are always clean, and if any slag or iron runs into them it runs out again without going into the blast box.

The cupola should be about fifty-four inches in diameter, lined with two rows of 4½-inch bricks, giving an inside diameter of thirty-six inches. The

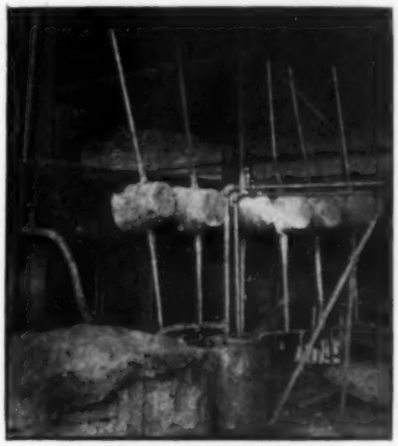


FIG. 9.—HEATING DEVICE FOR SMALL LADLES.

tuyeres should then be placed so that the slag hole which is six inches lower than this, will be sufficiently high to allow of the required amount of iron being tapped out when it has melted up to this height. In this way the cupola will be kept entirely free from slag, the tapping spout will be kept clear through a long heat, and there will be little risk of scaffolding. A blast pressure of from ten to fourteen inches of water should be maintained.

Cupola Platform and Elevator.

The cupola platform should be higher than is usual in iron foundries, as it should be arranged to take care of a height of not less than thirteen feet of cupalo from bottom plate to charging door. The platform should be strong enough to carry a day's run of melting stock, and should be figured to carry not less than five hundred pounds per square foot. It should be roomy, and provided with facilities for good ventilation as considerable smoke from the converter finds its way up there and at times it is a very undesirable place to work. The elevator, preferably electric, should have a large platform and be capable of lifting about

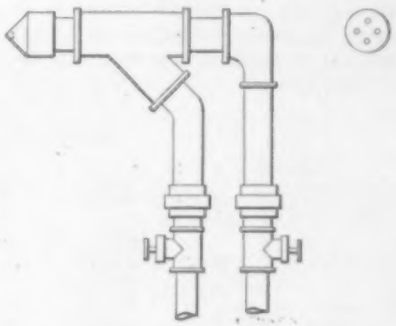


FIG. 10.—OIL BURNER FOR HEATING LADLES.

three tons at a time at a speed of about sixty feet per minute.

Cupola Blower and Motor.

Any of the accepted types of cupola blower are satisfactory whether fan or pressure blowers, but they should be designed to give ample volume, on account of the high tuyeres and the large percentage of steel scrap used in the charges. The motor is of about twenty-five horsepower.

Ladles.

The Tropenas converter makes such exceedingly hot steel that it can all be poured over the lip of the ladle, bottom pouring ladles not being necessary. For pouring small work such as is made in snap molds, hand or bull ladles holding about one hundred and fifty pounds are commonly used. They are about thirteen inches in diameter at the top and are lined to a thickness of 1½ inches. The shanks are about seven feet long, and have one double end for the man who is to do the pouring and a single end for the helper. The crane ladles are the same as iron foundry ladles, except that they are generally a little smaller in diameter in proportion to their height, to lessen the loss of heat by radiation. They are preferably geared with pin spur gearing instead of worm and wheel as this gives a greater control, steadier flow and less possibility of a drop of the ladle when the gearing is worn.

Ladle Heating Furnace.

Ladles are generally heated to redness before filling with steel. In the case of the large ladles this is done either by inverting them over an oil-burning furnace, or introducing an oil burner through a portable

cover placed over the top of the ladle. The latter is illustrated in Fig. 8.

A device for heating small ladles arranged by the writer is shown in Fig. 9. It consists of a series of small oil burners placed side by side, spaced about eighteen inches apart from center to center, and a vertical plate with a two-inch hole opposite each burner, through which the flame passes and fills the bull ladle which is reared against the plate. In this way any number of ladles can be heated, according to the length of the plate, or, if required, one ladle can be heated white hot in ten minutes. It takes up very little floor space, is clean and easy to operate. Fig. 10 is a detail of the burner.

Sand Grinder and Mixer.

A grinder of the roller type is generally used. Centrifugal mixers have been tried, but they are not so successful, as they do not seem to thoroughly incorporate the clay with the rest of the ingredients. The usual type of mixer is illustrated in Fig. 11, but the writer prefers such a one as is shown in Fig. 12. In this type, while we get perfect mixing, we do not get so much crushing of the grains, and the resulting sand is more open, as is desirable in steel molding. This mixer is also very speedy in mixing sand, making it "strong" in much less time than the heavy roller grinder. The preparation of molding sand will be described in a later article.

The foregoing remarks constitute a general description of the mechanical part of a Tropenas plant. The next article will describe its operation.

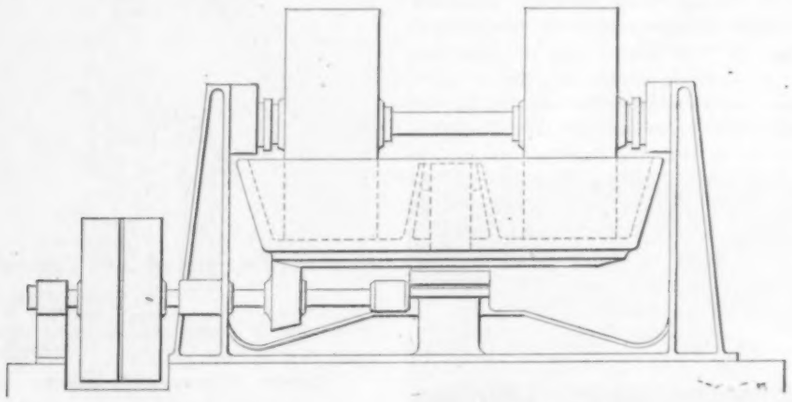


FIG. 11.—ORDINARY TYPE OF SAND MIXER.

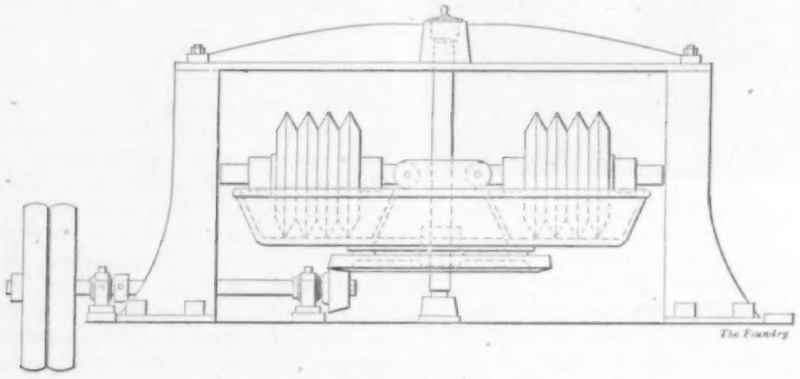


FIG. 12.—IMPROVED SAND MIXER

LARGE BLAST FURNACE AT BUFFALO STEEL PLANT.

A 500-ton blast furnace of the most modern type is to be built by the New York State Steel Co. in connection with the extensive plant now nearing completion on Abbott Road, near Buffalo, New York. Preliminary work on the furnace has been begun and contracts for its equipment are now being let. The big steel plant of this company, it is expected, will be ready for operation about the first of the year. It will represent a total expenditure of about $7,500,000. Its stockholders are, for the most part, business men and financiers of Buffalo, and the cash capital is $2,500,000, of which $1,000,000 has already been paid. The company has given a mortgage for $5,000,000 to the Commonwealth Trust Co., which will hold it as trustee for the bondholders. The bonds, 5,000 in number, are to run for thirty years.

MANY MANUFACTURING PLANTS BUILDING IN CANADA.

(Special Correspondence.)

Toronto, Can., Oct. 8.—The construction of the works of the Canadian Iron & Foundry Co. at Fort William, Ont., will be proceeded with immediately. The first sod on the site was turned by T. J. Drummond, of Montreal, Oct. 5, in the presence of a number of visiting manufacturers and others. The company will employ 200 men in the manufacture of railway car wheels and castings and gas and water pipes.

The Winnipeg Development & Industrial Bureau is making great efforts to attract industries to that city by means of the circulation of literature, correspondence, etc.. A list of the factories now under construction compiled by the bureau includes buildings for the following companies: Majestic Wire Fencing Co., Western Foundry Co., Dominion Bridge Co., Canadian Brass Co. and Dr. Cornelius' wire mattress concern.

Tests of the improved rail joint known as the Johnston patent rail joint are now being made in the yards of the Canadian Northern railway and the tracks of the street railway company at Winnipeg. Some twenty of these joints have been experimentally installed. Should the device prove satisfactory, it is intended to establish a plant for its manufacture.

The announcement is made that the Morgan Cement Works, situated just outside Montreal, have been sold to a syndicate of New York and Montreal capitalists, of which W. R. Warren, of the Warren-Burnham Co., New York, is one of the leading members. They propose immediately to install a plant with an initial annual capacity of 600,000 barrels, which can be doubled should it be found necessary.

The report of the Department of Trade and Commerce of Canada, just published, shows that for the fiscal year ending June 30, total imports of iron and steel and manufactures of those metals amounted in value to $44,072,268 as against $42,364,676 for the preceding fiscal year. The imports from the United States were $35,054,599, as against $34,262,970. For the month of June total imports were $5,511,281 and American imports $4,148,251, as compared with $4,325,278 total imports and $3,143,679 American imports for June, 1905. The most noticeable increase in American imports was under the heading of machinery and machines. Of the total imports for the fiscal year in these lines amounting to $9,550,314, $8,891,611 came from the United States, as compared with total imports of $7,596,917, of which $6,970,601 were American during the fiscal year 1904-05.

Steel Common Sets New High Record.

Activities in the money markets of the world proved the conspicuous feature of trading during the past week. The particular developments included the advance in the Bank of England rate of discount to five per cent, the highest quoted for more than five years, and in the Bank of Berlin rate to six per cent. This hardening of interest rates abroad, however, came at the end of the heavy gold movement to America, which, in connection with the generous relief afforded by the treasury department, had already materially eased the situation in this country, both call and time loan rates having declined. The week was noteworthy from the fact that on Friday United States Steel common sold at 50¼. The only time the price ever held at 50 or above was during the early months of the corporation's existence, when a four per cent divident rate prevailed, and there are many who now hold the opinion that this rate will be restored at the quarterly meeting on Saturday. The sinking fund fives sold during the week at 100¼, the highest level reached at any time since they were put on sale in 1903. The careful analysis of the Hill ore deal doubtless contributed largely to both these advances. News developments of the week were plentiful. Copper metal on Monday advanced to 21 cents a pound, the highest in 25 years, with later advances during the week. Cotton prices were higher on reports of damage to the crop by frosts. The suit of the State of Ohio vs. the Standard Oil Co., was begun, though exerted little influence in market circles, and an unconfirmed rumor was current that the government was about to proceed against the Union Pacific Co., on the old land claims. General Electric directors voted to increase the capital stock from $60,000,000 to $80,000,000, and will issue $11,000,000 of the new stock. The market was fairly active throughout the week, but price changes were in most cases of little consequence.

Financial Notes.

Recent dividend declarations include the following. United States Cast Iron Pipe & Foundry Co., regular quarterly, 1¾ per cent on preferred and 1 per cent on common stock, payable Dec. 1; International Steam Pump Co., regular quarterly, 1½ per cent on preferred, payable Nov. 1; Henry R. Worthington Co., regular semi-annual, 3½ per cent, payable Nov. 1.

The Cincinnati Forge & Switch Co., has amended its charter so as to provide that if at the end of any fiscal year the seven per cent dividend is not paid on the preferred stock, the holders of it will come into voting power and hold it until it is paid.

THE LEADING INDUSTRIAL SECURITIES.

	Closing Quotation Oct. 6	Closing Quo. Oct. 13	Changes	Date of 1906 Ann. Meet.	Par Value	Capital Outstanding	Dividend Basis	Dividend Being Paid	Dividend Date Last Div. Pay.
Allis-Chalmers Co.	17⅜	17¼	− ⅛	Sept.	100	19,820,000			
Allis-Chalmers preferred	44⅝	45	+ ⅜		100	16,150,000	7 cum	.....	Feb., 1904
American Can	6¾	6½	− ¼	Apr. 24	100	41,233,300			
American Can preferred	56¾	56½	− ⅛		100	41,233,300	7 cum	5 Q.	Oct., 1906
American Car and Foundry	45⅝	45⅜	− ⅛	June 28	100	30,000,000			May, 1905
AmericanCar and Foundry preferred	102½	101	−1½		100	30,000,000	7 n. c.	7 Q.	Oct., 1906
American Locomotive	74¾	70⅝	+1¾	Oct. 16	100	25,000,000		1¾	Nov., 1906
American Locomotive preferred	112	112	.....		100	24,100,000	7 cum	7 Q.	Oct., 1906
American Shipbuilding	62¾	60	+6¼	Oct. 2	100	7,000,000	4 n. c.	1 Q.	Aug. 1906
American Shipbuilding preferred	108	107	- 1		100	7,900,000	7 n. c.	1¾ Q.	Aug. 1906
American Steel Foundries	10½	10½	.....	Oct. 8	100	17,700,000			
American Steel Foundries preferred	43⅜	44	+ ⅝		100	17,700,000	6 cum	.....	Aug., 1905
Barney & Smith	74	72½	−1½	June 5	100	1,000,000	4	4	Sept., 1906
Barney & Smith preferred	140	141	+1		100	2,500,000	8 cum	8 Q.	Sept., 1906
Bethlehem Steel	20	20	.....	April 3	100	15,000,000			
Bethlehem Steel preferred	69	69	.....		100	15,000,000	7 n. c.	7 Q.	Aug ,1906
Bullock Electric preferred	112	112	.....	Oct. 2	100	1,000,000	6	6 Q.	July, 1906
Cambria Steel	38½	38⅛	.....	March 20	50	45,000,000	6	3 Q.	Aug., 1906
Cambria Iron	49	49	.....		50	8,468,000	4	4 S. A.	Oct., 1906
Colorado Fuel & Iron	56	55½	− ⅝	Oct. 15	100	30,132,000	7	.....	Apr., 1902
Wm. Cramp & Sons Ship & Eng. Bldg. Co.	17	17	.....	May 31	100	6,098,000	5	.....	Nov., 1902
Crucible Steel	13	13	.....	Oct. 17	100	25,000 000		.....	
Crucible Steel preferred	79¾	78¾	−1		100	25,000,000	7 cum	.....	Sept., 1906
Empire Steel	7	7	.....	Feb. 28	100	2,281,400			
Empire Steel preferred	40	40	.....		100	2,500,000	6 cum	3 S. A.	July, 1906
Fay & Egan	95	95	.....	Feb. 20	100	1,000,000	6	6 Q.	Aug., 1906
Fay & Egan preferred	128½	128½	.....		100	1,000,000	7 cum	7 Q.	Aug., 1906
General Electric	175½	179	+3½	May 8	100	48,256,050	8	8 Q.	Oct., 1906
International Pump	48¾	47½	−1¼	June 5	100	12,362,500		2	July, 1905
International Pump preferred	84⅝	84	− ⅝		100	8,850,000	6 cum	6 Q.	Nov., 1906
Lackawanna Steel	72	72	.....	March 14	100	34,971,400		.....	
Lake Superior Corporation	16½	17¼	+ ¾	Oct. 3	100	40,030,000		.....	
Niles-Bement-Pond	130	130	.....	Feb. 7	100	5,000,000	6	6 Q.	Sept, 1906
Niles-Bement-Pond preferred	105	105	.....		100	2,000,000	6 cum	6 Q.	Aug., 1906
Otis Elevator Co	50	55	+5	March 19	100	6,350,300		2 A.	Apr., 1906
Otis Elevator Co. preferred	96	98	+2		100	5,589,500	6 n. c.	6 Q.	Oct., 1906
Pittsburg Coal Co	15	16	+1	Feb. 12	100	30,135,000			
Pittsburg Coal preferred	54	58½	+4½		100	30,716,200	7	.....	Apr., 1905
Pressed Steel Car	51	53⅜	− ¾	Feb. 21	100	12,500,000		3	Aug., 1904
Pressed Steel Car preferred	97½	97⅝	.....		100	12,500,000	7 n. c.	7 Q.	Aug., 1906
Pullman Palace Car	256	263	+7	Oct. 18	100	74,000,000		8 Q.	Aug., 1906
Railway Steel Spring	56	53⅝	−2⅛	March 1	100	13,500,000		4 S. A.	Oct., 1905
Railway Steel Spring preferred	100	100	.....		100	13,500,000	7 cum	7 Q.	Sept., 1906
Republic Iron & Steel	38¼	37⅞	− ⅛	Oct. 17	100	27,352,000		.....	
Republic Iron & Steel preferred	99	98	−1		100	20,852,000	7 cum	7 Q.	Oct., 1906
Sloss-Sheffield	73¾	74½	+¾	March 14	100	7,500,000	5	5	Oct., 1906
Sloss-Sheffield preferred	106	106	.....		100	6,700,000	7 n. c.	7 Q.	Oct , 1906
Tennessee Coal & Iron	162	157	−5	May 15	100	22,552,800		4 Q.	Nov., 1906
U. S. Cast Iron Pipe & Foundry	49½	48½	−1	June 27	100	12,500,000		2	Dec., 1906
U. S. Cast Iron Pipe & Foundry preferred	90½	90½	.....		100	12,500,000	7 n. c.	7	Dec., 1906
U. S. Steel	48⅜	48⅝	+ ⅛	April 16	100	508,302,500	2 n c.	½ Q.	Oct., 1906
U. S. Steel preferred	108	107¾	− ¼		100	320,281,100	7 cum	7 Q.	Aug , 1906
U. S. Steel 5's	99⅝	100¼	+ ⅛		100	463,798,000	5	5 A.	
Virginia Iron, Coal & Coke	51	57½	+6½	Sept. 18	100	8,641,600		.....	
Westinghouse Electric	154	154	.....	June 27	50	20,986,350	10	10 Q.	Oct., 1906
Westinghouse Air Brake	161	161	.....	Oct. 2	50	10,990,450	30	30 Q.	Oct., 1906

NEWS FROM MANY INDUSTRIES.

New Buyers:—

The Niles Car & Mfg. Co., Niles, O., has increased its capital stock from $300,000 to $500,000.

The Marion Steam Shovel Co., Marion, O., has formally increased its capitalization from $500,000 to $1,000,000.

The Tidewater Coal Co., Youngstown, O., has been organized with a capitalization of $500,000 by H. H. Wick, Robert Bentley, Cecil D. Hine, J. G. Butler, Jr. and John C. Wick.

The Union Metal Post Co., Canton, O., has been incorporated with a capital of $25,000 by Christie M. Mumaw, D. C. Barrick, L. W. Barrick, Charles H. Barrick and Christopher C. Barrick.

The Valley Falls Iron Foundry, Inc., Salem, Mass., has been organized with a capitalization of $10,000 to deal in iron. The incorporators are: William S. McIntire, Frank W. Delano and Elizabeth McIntire.

The Machinists' Foundry Co., Muncie, Ind., has been incorporated with a capital of $10,000 by A. L. Bingham, Fred C. Kaiser, John M. Stetter, W. H. Moon, H. P. Gerdau, Cary Crozier and Frank Burt.

The Pierson & Dean Co., New Haven, Conn., has been organized to manufacture and deal in electrical machinery and supplies. The capital stock is $10,000, and the incorporators are: Etta L. Dean, Frank Pierson and W. F. Dean, all of New Haven.

The Fox Reversible Gasoline Engine Co., Newport, Ky., has been organized with a capitalization of $100,000 to operate in connection with the Dean Engine Co., and will build engines, motors, etc. The incorporators are: Dr. E. E. Schmidt, M. B. and A. G. Dean, John Schneider and Albert Berry.

The Ideal Fence Co., Ltd., of Winnipeg, Man., has been organized to manufacture wire fencing and wire goods generally. The capital stock is $100,000, and the provisional directors are: Walter L. McGregor, Gordon M. McGregor, William H. Burnham, Frank W. Prentice and Fred C. Stevenson.

The Montreal Steel Co., Montreal, Can., will increase its capital stock to $2,000,000 in order to provide for extensions. The preferred stock will be increased from $800,000 to $1,050,000, and the common stock from $700,000 to $950,000. The company will erect a plant for the manufacture of manganese castings and will extend a number of its present plants.

New Construction:—

The Riverside Engine Co., Oil City, Pa., manufacturing gas engines, air and gas compressors, is building an addition to its plant and office building.

The Coosa Pipe & Foundry Co., Gadsden, Ala., is preparing to increase its plant by a 75 x 75-foot addition.

The Bryant Electric Co., Bridgeport, Conn., manufacturing electric specialties, has let contracts for a brick addition to its plant 41 x 153 feet.

The Superior Iron Works, Superior, Wis., is now making a two-story brick and frame addition to its plant to care for increased business.

The Knox Automobile Co., Springfield, Mass., is to erect a four-story addition 50 x 100 feet, to be used principally by the machine departments.

The W. P. Lucas Co., Oil City, Pa., will erect a modern machine shop for the manufacture of automobiles, automobile parts and machinery.

The Virginia & North Carolina Wheel Co., of Richmond, Va., is to make improvements to its plant, doubling its present capacity.

The Russell & Erwin Mfg. Co., New Britain, Conn., manufacturing hardware, is to extend its plant by the addition of a brick structure 54 x 130 feet.

The York Mfg. Co., of York, Pa., manufacturer of ice making and refrigerating machinery, is making additions to its foundry and pipe shop.

The Wheeler Reflector Co., Boston, Mass., is building a new plant for the manufacture of steel reflectors. Contract has been let to J. H. Volkommer & Co.

Zeh & Hahnemann, Newark, N. J., have more than doubled their capacity by the erection of a new building at Vanderpool street and Avenue A, in that city.

The Des Moines Bridge & Iron Co., Des Moines, Ia., is adding machinery for the manufacture of bolts and rivets and is making other extensions to its works.

The Stephens-Adamson Mfg. Co., Aurora, Ill., is building an addition to its plant 80 x 200 feet, which will be used as a blacksmith and steel shop. Equipment has been purchased.

The Anderson Forge & Machine Co., Detroit, Mich., is erecting an additional building of mill construction, 35 x 115 feet, two stories, for the manufacture of crank shafts and drop forged ties.

The Youngstown Sheet & Tube Co., Youngstown, O., states, in regard to rumors recently circulated, that no arrangements have been made as yet for the building of additional blast furnaces, and none will be made in the near future.

Plans have been prepared for an 80-foot addition to the main building of the Mt. Vernon Bridge Co., Mt. Vernon, O., which will probably be built this winter. The company employs about 200 men.

The Crescent Rotary Engine Co., Spokane, Wash., has let the contract for the erection of a brick structure 50 x 150 feet at Yardley, near that city. J. Austin Larson is interested in the company.

The Thomas Construction Co., recently organized at Niles, O., has prepared plans for an extensive steel plant, which will include two 50-ton open-hearth steel furnaces, soaking pits, continuous furnaces, gas producers, etc.

The East Liverpool Foundry, Machine & Supply Co., East Liverpool, O., has awarded the contract for the erection of a new foundry and machine shop. All the necessary machinery has been contracted for.

The Russel Wheel & Foundry Co., Detroit, Mich., has a new forge shop 48 x 150 feet under construction. An order was recently booked by this company for 900 four-wheeled stripper cars for the Oliver Iron Mining Co., Duluth.

The Warren City Tank & Boiler Co., Warren, O., which recently made an important addition to its plant, now finds another necessary owing to its growing business. When this is completed about 300 men will be employed.

C. W. George Everhart, president of the Challoner Foundry Co., Oshkosh, Wis., is planning the erection of a steel casting plant at that city, primarily to supply the needs of the Challoner Co. The main foundry building will be 80 x 140 feet.

The contract has been awarded for a new fireproof building, 70 x 175 feet, of reinforced concrete construction for the Star Corundum Wheel Co., Ltd., Detroit, Mich. The plant will be equipped with modern machinery for the manufacture of abrasive wheels.

The Standard Gauge Steel Co., Beaver Falls, Pa., states that the building it is now erecting is not intended as an annex to its machine shop, but will be used as a machine shop proper. Practically all of the equipment has been secured.

The Carnegie Steel Co. will install a three-high 28-inch blooming mill at the Donora Works, Donora, Pa. Contract for this has been placed with the Pennsylvania Engineering Works, New Castle, Pa. The steel building for the mill will be erected by the

American Bridge Co. and the engines furnished by the Wisconsin Engine Co., of Milwaukee.

The Howe Scale Co., Chicago, has leased a tract of ground at 1319-1323 Wabash avenue, and will construct a building for its sales rooms, offices and warehouse. The entire transaction will involve about $150,000. The company has been located on Lake street for nearly 30 years.

The new plant which the Electric Railway Equipment Co., Cincinnati, O., is building is near Wheeling, W. Va., and will be used in manufacturing iron tubular poles. The building is 50 x 200 feet, and its equipment consists of special machinery made in the company's shops at Cincinnati.

Ground has been broken at Fort William, Ont., by the Canadian Iron & Foundry Co. for an extensive plant which is to be devoted especially for the manufacture of railway car wheels, cast iron water and gas pipes and castings. A distinguished party witnessed the turning of the first sod on the site.

The Kelley-Arnold Mfg. Co., organized at Wilkesbarre, Pa., some time ago for the manufacture of the Kelley-Arnold automatic air and steam coupler, is planning the erection of a plant in that city. The officers of the company are: C. F. Royer, president; J. J. O'Donnell Esq., secretary, and Philip Reilley, treasurer.

The Cockburn Barrow & Machine Co., which is to be consolidated with the Stayman Mfg. Co., is erecting a new plant at Twelfth, Thirteenth and Monmouth streets, Jersey City, N. J. The plant is to be a large one and will include a main machine shop, blacksmith shop, pattern department, boiler and power house.

The North American Steel Co. is erecting a new steel plant at Belington, W. Va., including an extension to the present rolling mill, 100 feet wide, and a building 60 x 200 feet, in which will be installed a steel plant having two 30-ton open-hearth furnaces; also a boiler house 35 x 90 feet. The contract has been let to J. H. Volkommer & Co., contracting engineers of Pittsburg.

The Berger Mfg. Co., Canton, O., states that the plant of the Waukesha Sheet Steel Co., which is being moved to Canton, is a six-hot mill consisting of the following: two roughing mills, two cold mills, eight annealing furnaces, ten sheet and ten pair furnaces, one bar mill furnace and four 300-horsepower boilers. In addition to this the Berger Co. will add two busheling furnaces, another bar mill furnace, one 50-inch squeezer and one three-high bar mill with all modern improvements. The output of this plant will be 1,000 tons of steel sheets per week.

Additions to the plant of R. J. Schwab & Sons Co., Milwaukee, will be of reinforced concrete construction with hollow cement block walls, and will be devoted to the manufacture of cement building block machines. The power plant which it intends to install is already purchased. The first of two similar units consists of a 125-horsepower gas engine, suction gas producer and 75-kilowatt generator, direct connected.

General Industrial Notes:—

The open-hearth department of the Carnegie Steel Co., at Sharon, Pa., broke all daily records Oct. 11 by turning out 555 tons of steel.

The New York State School of Clay-working, at Alfred, N. Y., reports that the registration of students is 40 per cent in advance of last year.

The Orleans Metal Bed Co., New Orleans, La., and Hanna & Kalmbach, of that city, have consolidated under the name of the Orleans Metal Bed Co., Ltd.

The York Transit Co., in which John J. Boland, of Buffalo, is interested, was recently organized for the purpose of building a steel steamer of 9,000 tons capacity.

The Toledo Ship Building Co., Toledo, O., has secured from the Marine Boiler Works a tract of land with a river frontage of 200 feet, the consideration being $18,000.

The Portsmouth Harbison-Walker Co. announces that all business formerly transacted by this company will hereafter be handled by the Harbison-Walker Refractories Co., Pittsburg.

The Acme Malleable Iron & Foundry Co., Puyallup, Wash., recently organized with a capitalization of $25,000, has secured a factory building in that city and will shortly begin operation.

The Napier Iron Works, Napier, Tenn., went out of blast the latter part of September in order to make repairs and to increase its capacity. It expects to apply the torch about Nov. 1.

A new iron furnace in which it is understood L. D. York, of Portsmouth, O., will be interested, may be built on land belonging to the Ironton Coal & Iron Co., in Elizabeth township, Scioto county.

The Hutton Standard Safe & Lock Co., Des Moines, Ia., has secured a factory building and is now installing machinery. W. A. Hutton is president and manager, Frank Waterbury, vice president; Eugene Waterbury, treasurer; Edwin L. Bowen, secretary, and Frank Deckelmyer, general superintendent.

The American Pig Iron Storage Warrant Co., 44 Wall street, New York, reports as follows: stocks in yards Aug. 31, 8,200 tons; receipts during September, 1,500 tons; deliveries during September, 1,400 tons, on hand Sept. 30, 8,300 tons.

Promoters of the plant now being erected just north of Youngstown, O., for the manufacture of pressed steel for concrete work, have asked the city council of that place to provide an adequate water supply, and a 12-inch main will be laid to reach the plant.

A special Pullman car recently carried a number of Pittsburg and Allegheny guests of the Follansbee Bros. Co. on an inspection tour of the big tin plate and sheet metal works of that company, now building at Follansbee, W. Va. Two 25-ton open-hearth furnaces are being installed.

The gas producer department of the Morgan Construction Co. was moved Oct. 5 from 40 Exchange place, New York city, to Worcester, Mass., where the main office and works of the company are located. E. A. W. Jefferies will continue in charge of the department, the change being made necessary by the large volume of orders on hand.

The transfer of the Ship Owners' Dry Dock Co., of Chicago, to the American Ship Building Co. was a part of the deal whereby the latter secured orders for eight large steel freighters. The Lackawanna Steamship Co., with a capital of $2,250,000, one-half stock and one-half bonds, has been organized as owner of the new line which will be operated by Pickands, Mather & Co., Cleveland.

The Winget Concrete Machine Co., Columbus, O., has been merged with the Cement Machinery Mfg. Co., Burlington, Ia., and the Palmer Hollow Block Machinery Co., Washington, D. C. The three companies own important basic patents for cement-making machinery. A new company known as the United Cement Machine Mfg. Co., with a capitalization of $1,000,000, has been formed with general offices in Columbus, and the Plain City, O., plant of the Winget company the chief manufacturing point.

The first cargo of 80-pound steel rails from the Dominion Iron & Steel

Co.'s mills at Sydney, N. S., for the Grand Trunk Pacific railway, comprising 1,500 tons, has been landed at Quebec. It is proposed to bring 40,000 tons to Quebec this season from which point they will be distributed from the Quebec Bridge and Reeds Station so as to cover the division under contract to La Tuque, the construction of which will be pushed rapidly forward.

The La Valley Mfg. Co., Milwaukee, Wis., incorporated with a capital of $50,000, proposes to erect a steel foundry building on a site between Muskego avenue and Park street. Plans for the building have not as yet been made. Th incorporators are C. W. La Valley, Donald Fraser, William C. Sargent and William C. Frye.

Fires and Accidents:—

An explosion of molten metal at the plant of the Illinois Steel Co., South Chicago, Oct. 9, caused the death of two workmen.

The Canon City & Cripple Creek railroad, Canon City, Colo., lost its main machine shop by fire recently. The loss is estimated at $40,000.

The plant of the Metal Volatilization Co., Denver, Colo., burned Oct. 7, with a loss of more than $50,000. The fire is supposed to have been the work of an incendiary.

The Sibley college of Cornell university was damaged to the extent of $5,000 by fire Oct. 12, the building being saved by the efforts of the fire department and students combined.

Trade Notes:—

The Massachusetts Steel Casting Co., Everett, Mass., has closed with the Tropenas Converter Steel Process, through Powell & Colne, 11 Broadway, New York, for a second converter to accommodate increased business.

The Westinghouse Electric & Mfg. Co. reports an increased number of government contracts, one recently closed calling for a large amount of electrical power generating apparatus for installation at the Norfolk, Va., navy yard.

An order has recently been placed with the William Tod Co., of Youngstown, O., for two pairs of steam blowing engines for the Indiana Steel Co.'s new plant at Gary, Ind. The engines are to be of the horizontal cross compound type with steam cylinders 44 inches and 84 inches in diameter, and air cylinders 90 inches and 90 inches in diameter, all having a stroke of 72 inches. Each pair of these engines has a capacity of 50,000 cubic feet of free air per minute, compressed to a normal pressure of 18 pounds.

The Morgan Construction Co., Worcester, Mass., recently secured what is said to be the largest contract for gas producers ever closed. It calls for 140 large producers with gas flues and Dyblie reversing valves to operate the 28 open-hearth furnaces to be erected at Gary, Ind. The order was placed through E. A. W. Jefferies, and makes the fifth order for gas producers awarded by this interest to the Morgan Construction Co. In Europe and England during the past twelve months 100 Morgan continuous gas producers have been sold.

The Crocker-Wheeler Co., Ampere, N. J., has shipped within the last few weeks nine carloads of electrical machinery, exclusive of other smaller shipments to the following large concerns: four carloads to the National Tube Co., including motors of various sizes; two carloads to the Lehigh Portland Cement Co., of one direct current generator and a number of motors of various sizes; two carloads consisting of alternating current generators to the Snow Steam Pump Co., and one carload of the Form L small motors to the Crocker-Wheeler Co., at San Francisco, Cal., which are to fill part of the company's orders taken since the fire.

NEW ENGLAND FOUNDRYMEN.

The regular monthly meeting of the New England Foundrymen's Association was held Oct. 10, at the Exchange Club, Boston. Dinner was served at six o'clock, after which the routine business of the evening was disposed of in the usual manner, President W. B. Snow presiding.

The death of Edgar B. Pierce, of the Wheeler Foundry Co., Worcester, was reported and the chair appointed Messrs. C. E. Hildreth, J. F. Kyes and L. A. Colvin, a committee to prepare resolutions.

Announcement was made that owing to the convention of the National Founders' Association falling on the same day as the next meeting of this association, the executive committee had decided to hold the next meeting at Boston instead of New Haven as previously arranged, and Dr. Richard Moldenke, of Watchung, N. J., would be the principal speaker.

The president then introduced Mr. E. Stutz, of Goldschmidt Thermit Co., New York, who gave an illustrated talk on thermit heating and welding compound as applied in foundry practice.

TRADE PUBLICATIONS.

The Allis-Chalmers Co., Chicago, has issued an attractive catalog of its Huntington centrifugal roller quartz mill. Illustrations and elaborate diagrams of the various sizes and types of the mill are presented, together with directions for erecting and operating same. The catalog includes specifications for free gold milling plants of various sizes and also lists a number of rock and ore breakers, crushers, vanners, concentrators, ore feeders and other mining machinery. The catalog is known as No. 10, seventh edition.

Fay & Scott, Dexter, Me., manufacturers of various types of machinery, have issued catalog No. 12, illustrating and describing their standard engine lathes. Special features of these machines are noted, and illustrations and specifications of various types and sizes are presented.

The Ball Engine Co., Erie, Pa., is "25 years young," according to the inscription upon the cover of a handsome catalog now being distributed. It lists a variety of side crank and Corliss engines, noting a number of features of value which these engines incorporate.

The Strong, Carlisle & Hammond Co., Cleveland, O., with branches in New York and Boston, is distributing a 32-page catalog setting forth the merits of Squires steam specialties, which include the Squires steam trap, the Squires reducing valve, the Squires pump governors and the Squires feed water controller. Figures are presented showing the merits of the specialties which are clearly illustrated. A full page chart shows the feed water controller with its working parts in position and gives the method and size of piping, while the other specialties are presented in an equally clear manner.

The Steward & Romaine Mfg. Co., Philadelphia, has issued a skeleton of its 1906 catalog describing various styles of expansion bolts, anchors, expansion eye bolts, hooks, drills, etc.

The Parker Hoist & Machine Co., Chicago, has issued catalog No. 18, listing a wide range of contractors' machinery and supplies.

The Ramsey Engine Co., Philadelphia, is distributing a booklet describing the Ramsey crank mechanism as used on the Ramsey gas engine, for increasing the efficiency of single acting engines.

The Berger Mfg. Co., Canton, O., is distributing a handsome catalog illustrating "Classik" steel ceilings. It consists of about 35 9 x 12 pages, well illustrated with various designs of stamped metal ceilings made by this company.